Digitized by the Internet Archive
in 2010 with funding from
University of Toronto

http://www.archive.org/details/southobservlog7483univ

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

T = 53°F RH 38%

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1975	DEC. 1975	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
569	CD -77 973	19h 27.7	-76°57'	Oct12 1974	00h32m	00h44	14m	1h57mW	3¾"	325	0.6 100µ	112Å 7.00	N10.6		NeA	2s	1½m in preflash box	IIaD	MWP-2 7m	Dennefeld CS&Dm	T: 53°F H: 38%
570	NGC7009	21h02.9	-11 28	Oct12	01:29	01:44	15m	—	"	"	130µ/open	"			"	1s		"	MWP-2 5m	"	
571	SNR1	00 46.4	-73 15.8	"	02:49	03:29	40m	0h35mE	"	"	130µ/open	"			"	1s	60 watt	"	"	"	
572	"	"	"	"	3:53	5:53	2h	1h50mW	2"	"	"	"			"	"		"	"	"	
573	SNR X	00 45.9	-73°21'	"	06:07	06:22	15m	—	2"	"	"	"			"	"		"	"	"	
574	N 11 L	04 54.9	-66° 27'	"	07.37	09.17	1h40m	—	2"	"	"	"			"	3s		"	"	"	
575	NGC7009	21h2m9	-11°28'	Oct13 1974	00:55	01:06	20m5	S.T.art start 21h41m	2"	322	100µ/open	112Å 8.48			NeA	2s	1½m in p-f box 60w	IIaD	MWP-2 5mm	Dennefeld Dm	T 54° H 38%
576	SNR1	00h46m4	-73°15.8	"	03:22	04:22	1h	0h24W	"	322	"	"			"	20@ 1s		"	"	"	
577	SNR2	00h47.3	-73° 26.6		04:54	06:24	1½h	02h25W		"	"	"			"	4		"	"	"	
578	N48(B)	05h25.7	-66°19.8		07:02	09:12	2h10m	0h 34°W	3"	"	"	"			"	4		"	"	"	no good - stuck to screen
579	NGC7009	21h02.9	-11°28'	Oct14 1974	00:11	00:28	1m&15m	0h12W	4"	322	130µ/open	112/8.48			NeA	2@ 1s	1½m in	IIaD	MWP-2 5mm	Dennefeld Dm	T: 51°F H: 42%
580	SNR1	00h46.4	-73°15.8		01:43	05:43	4h	1h45W	2-3"	"	"	"			"	"	p.f box 60watt	"	"	"	
581	N48(B)	05h25.7	-66°19.8		07:47	9:09	1h22m/1h	0h31W	2"	"	"	"			"			"	"	"	
582	SNR1	00h46.4	-73°15.8	Oct15 1974	01:37	4:37	3h	0h42W	2"	322	130µ/open	112/8.48			NeA	20@ <1s	1½m in	IIaD	MWP2 5m	Dennefeld Dm	T:47 RH 40 preflashed 1s
583	N48(B)	05h 26.1	-66°17'	"	5:48	6:23	1h35m	1h11E	"	"	"	"			"	"	p-f box 60w	"	"	"	preflashed 1s
584	N48(B)	5h25.6	-66°20'	"	7:39	9:09	1½h	0h41W	"	"	"	"			"	"		"	"	"	"
585	SNR2	00h47.3	-73°25.8	Oct16 1974	00:20	04:40	4h20m	1h04W	3"	322	130µ/open	112/8.48			NeA	20@ 10s	1½m in p.f. box 60watt	IIaD	MWP2 5m	Dennefeld Dm	Neutral Filter added to NeA lamp T 49, RH 39%
586	N206	5h 32.3	-71°01.6	"	5:20	5:50	30m	5h+4m 17W	2"	"	"	"			"	"		"	"	"	
587	N206	"	"	"	6:05	8:05	2h	33mW	"	"	"	"			"	"		"	"	"	
588	NGC1535	4h13m1	-12°48	"	8:31	9:01	1m,5m,20m 20s	1h42E	"	"	"	"			"	"		"	"	"	T 49 RH 44 out 17 with RG-2 filter
589	SNRX	00h45.9	-73°21	Oct17 1974	00:59	01:59	1h	~~1h27E~~	2"	325	130µ/open	112/9.7			NeA	10@ 10s	1½m	IIaD	MWP2 5m	Dennefeld Dm	new tilt: 9p7
590T	SNR1	00h46.4	-73°15.8		2:13	5:13	3h	1h26E	"	"	"	"			"	20@ 10s	p-f box	"	"	"	
591	N206	5h32.3	-71°01.6		5:39	8:34	2h55	2mE	"	"	"	"			"	"	60watt	"	"	"	
592	NGC1535	4h13.1	-12°48'		8:50	9:08	18m	1h54E	"	"	"	"			"	"		"	"	"	
593	SNR1	00h46.4	-73°15.8	Oct18	0:25	4:25	4h	—	3"	325	130µ/open	112/9.07			NeA	20@ 10s	"	IIaD	MWP2 5m	Dennefeld Dm	T:47 H:40
594	N103B	5h09.1	-68°45.5		4:30	8:31	3h8m	25mE	2"	"	"	"			"	"		"	"	"	
595	NGC1535	4h13.1	-12°48		8:47	9:07	20m	1h57E	"	"	"	"			"	"		"	"	"	
596	SNR1	0h46.4	-73°15.8	Oct19	1h20	4:20	3h	40mE	2"	318	130/open	112/7.02			NeA	20@ 1s	"	IIaD	MWP-2 5m	Dennefeld Dm	
597	N206	5h32.3	-71°01.6		5:03	8:03	3h	22°W	"	"	"	"			"	"		"	"	"	
598	NGC1535 IC418	4h13.1 5h26.3	-12°48 -12°42.2		8:19	8:57	5m&15m 7m	1h34W 39mW	"	"	"	"			"	"		"	"	"	

T: 54°F RH: 38%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 2

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 75	DEC. 75	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
599	HR6164	$16^h34^m.6$	$-42°48'$	Oct21 1974	00:35	00:40	$5^s, 10^s, 25^s$	5^h19W	3"	327	150/.8	112/3.2	5.58		N&A	20s		IIaD	7m MWP-2	Dm	T:53 H:38 Blue
600	CD-77 973	$19^h27.4$	$-76°57'$		1:38	1:58	20m	—	5"	"	130/.6	"			"	"	1½m	"	5m MWP-2	Bernard Dm	Blue
601	SNRX	$0^h45.9$	$-73°21$		2:27	3:57	1^h30	24^mW	"	"	130/open	"			"	"	in pre flash box bandst	"	"	"	Tracking poor due to "line" mode for run
602	Near SNRX	"	"		4h19	4:49	30m	1^h16W	"	"	"	"			"	"		"	"	"	
603	SNR 2	$0^h47.3$	$-73°21'.6$		5:07	8:07	3h	4^h33W	3"	"	"	"			"	"		"	"	"	
604	NGC1535	$4^h13.1$	$-12°48'$		8:27	8:33	6m	1^h35W	"	"	130/.6	"			"	"		"	"	"	
605	IC418	$5^h26^m.3$	$-12°42'.2$		8:36	8:41	5m	30^mW	"	"	130/1.2	"			"	"		"	"	"	
606	HR6219	$16^h45.2$	$-58°17$	Oct30 1974	1:06	1:11	$5^s, 10^s$ 20s.	6^m5W	3"	325	150/.8	113/7.2	5.60		N&A	20s		IIaD	7m MWP2	Dm	Scope "paused" during trails
607	HR6462	$17^h23.3$	$-56°22$		1:26	1:31	$18^s, 45^s, 165^s$	5^h57W	"	"	"	"	3.47		"	"		"	"	"	
608	HR6716	$18^h00.4$	$-22°47'$		1:46	1:51	15,30,60	5^h40W	"	"	"	"	5.73		"	"		"	"	"	
609	HR6262	$16^h52.1$	$-41°48$	Nov1 1974		0:29	3,6,12s	5^h31W	2"	323	150/.8	112/3.0	4.36		N&A	20s		IIaD	7m MWP-2	Dm	Brightest in field
610	HR6164	$16^h34.6$	$-42°48$			0:48	$4½, 9, 18^s$	6^h8^mW	"	"	"	"	5.58		"	"		"	"	"	T:54F H:39%
611	HR6219	$16^h45.2$	$-58°17$			1:03	$4½, 9, 18^s$	6^h08W	"	"	"	"	5.60		"	"		"	"	"	
612	HR6462	$17^h23.3$	$-56°22$			1:20	$3, 4½, 9^s$	5^h53W	"	"	"	"	3.47		"	"		"	"	"	
613	HR6716	$18^h00.4$	$-22°47'$			1:36	12,24,48s	5^h30W	"	"	"	"	5.73		"	"		"	"	"	
614	HR6727	$18^h01.5$	$-22°43'$			1:49	15, 30, 60s	5^h43W	"	"	"	"	6.64		"	"		"	"	"	
615	HR6822	$18^h13.7$	$-20°44'$			2:01	12,24,48s	5^h43W	"	"	"	"	5.45		"	"		"	"	"	
616	HR2787	$7^h17.5$	$-36°41'$			6:28	48, 96, 192s	2^h55E	"	"	100/.8	"	4.51		N&A	10s		IIaO	"	"	w/o I.T.
≠	HR2790	$7^h17.7$	$-36°42'$			6:45	72, 150, 300s	2^h37E	"	"	"	"	4.94		"	"		"	"	"	
617	αDel	$20^h38^m.5$	$+15°50'$	Nov2 1974		2:22	28, 32, 36s	3^h44W	2"-3"	323	50/.6	112A/2.0	3.71	B9 IV	N&A	12s		IIaO	15m Mistol S.K	(Four) Thorne Dm	T:58 H:37%
	α PsA	$22^h56^m.3$	$-29°45'$			2:36	1½, 3, 3s	1^h39W	2"	"	"	"	1.25	A3 V					"	"	
	w² Aqr	$23^h41^m.4$	$-14°41'$			2:48	44, 50, 55s	1^h07W		"	"	"	4.47	B9.5V					"	"	
	18 Tau	$3^h43.7$	$+24°46'$			4:12	96, 180, 240, 255s	1^h34E		"	"	"	5:57	B8II					"	"	
	22 Tau	$3^h44.6$	$+24°27'$			4:41	235, 255, 290s	1^h05E		"	"	"	6.41	B9V					"	"	
618	HD18331	$2^h55.6$	$-3°49'$			5:10	45, 35, 25s	0^h15E					5.25	A1V	"	"		"	"	"	
	r Peg	$0^h11^m.9$	$+15°03'$			5:20	8, 10, 11s	3^h08W					2.60	B2IV				"	"	"	
	19 Tau	$3^h43.7$	$+24°23'$			5:33	20, 26, 33s	0^h12E					4.19	B6IV				"	"	"	
	16 Tau	$3^h43.9$	$+24°12'$			5:47	66, 75, 90s	0^h03E					5.42	B7IV				"	"	"	
	o Per	$3^h42.6$	$+32°12$			6:00	20, 33, 26s	0^h16E					3.88	B1III				"	"	"	
	θ² Tau	$4^h27.2$	$+15°49'$			7:07	10, 12, 14s	0^h40E					3.57	A7III				"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
619	η Aur	$5^h04^m.8$	+41° 12′	Nov.2 1974	7:20	7:23	16,24,32^s	0^h15W	2″	323	50/.6	112Å/ 7.0	2.99	B3 V	NeA	12^s		IIa-O	15^m Metol Sulfite	Tnr, Dm	
	β Cri	$5^h06^m.6$	−5° 07′	″		7:32	4,6,8^s	0^h25W					2.93	A3 III							
	β Ori	$5^h13^m.3$	−8° 14′	″		7:36	1,2,3^{tr}	0^h22W					0.10	B8 Ia							
	ζ Ori	$5^h16^m.4$	−6° 52′	″		7:46	7,10,13^s	0^h30W					3.47	B5 III							
	λ Lep	$5^h18^m.4$	−13° 12′	″		7:53	12,17,22^s	0^h35W					4.04	B0.5 IV							
620	γ Ori	$5^h23^m.8$	+6° 20′	″	8:02	8:03	1,2,3^{tr}	0^h38W	″	″	″	″	1.41	B2 III	″	″		″	″	″	
	δ Ori	$5^h30^m.7$	−0° 19′	″		8:07	2,3,4^{tr}	0^h36W					2.02	O9.5 II							
	υ Ori	$5^h30^m.7$	−7° 20′	″		8:16	18,23,28^s	0^h45W					4.36	B0 V							
	α Lep	$5^h31^m.6$	−17° 51′	″		8:21	5,7,9^{tr}	0^h48W					2.77	F0 Ib							
	42 Ori	$5^h34^m.2$	−4° 51′	″		8:28	18,23,28^s	0^h53					4.40	B1 V							
621	δ Sgr	$18^h53^m.7$	−26° 20	Nov.3 1974	0:20	0:25	5,7,9^{tr}	3^h35^mW	2″	324	″	″	1.81	B2.5 V	″	″		″	″	″	T: 61° H 37%
	δ Aql	19 24.2	+3 04	″		0:37	31,39,45^s	3^h17W					3.68	F0 IV							
	κ Aql	19 35.5	−7 05	″		0:48	84,105,126^s	3^h16W					4.95	B0.5 III							
	α Del	20 38.5	+15 50	″		1:03	34,44,50^s	2^h25W					3.71	B9 IV							
	α PsA	22 56.3	−29 45	″		1:10	2,3,4^{tr}	0^h18W					1.25	A3 V							
	λ Psc	23 40.8	+1 39	″		1:22	61,66,72^s	0^h15E					4.72	A7 V							
622	ω^2 Aqr	$23^h41^m.4$	−14° 41′	″	1:44	1:49	67,47,42^s	0^h12E	″	″	″	″	4.47	B9.5 V	″	″		″	″	″	
	γ Peg	0 11.9	+15 03	″		1:56	6,12,18^s	0^h12E					2.60	B2 IV							
	β Ari	1 53.3	+20 41	″		2:04	15,20,26^s	1^h45E					2.78	A5 V							
	β Tri	2 08.1	+34 52	″		2:12	31,48,55^s	1^h52E					3.14	A5 III							
	HD 18331	2 55.6	−3 49	″		2:29	129,144,151^s	2^h23E					5.25	A1 V							
623	40 Per	$3^h40^m.8$	+33° 53′	″	3.40	3:54	200^s,170^s,220^s	1^h43E	″	″	″	″	4.95	B0.5 V	″	″		″	″	″	
	0 Per	3 42.6	+32 12	″		4:03	42,48,54^s	1^h36E					3.88	B1 III							
	17 Tau	3 43.4	+24 02	″		4:10	28,38,44^s	1^h28E					3.58	B6 III							
	18 Tau	3 43.7	+24 46	″		4:29	200,230,250^s	1^h11E					5.57	B8 V							
	19 Tau	3 43.7	+24 23	″		4:37	50,60,66	1^h02E					4.19	B6 IV							
	16 Tau	3 43.3	+24 12	″		4:53	176,198,220^s	0^h45E					5.42	B7 IV							
624	η Tau	$3^h46^m.0$	+24° 02′	″	5:04	5:10	13,16,19^s	0^h31E	″	″	″	″	2.78	B7 III	″	″		″	″	″	
	27 Tau	3 47.7	+23 59	″		5:21	26,33,39^s	0^h23E					3.53	B8 III							
	θ^2 Tau	4 27.2	+15 49	″		5:29	22,28,34^s	0^h54E					3.57	A7 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
624	η Aur	$5^h 04^m.8$	+41° 12′	Nov. 3 1974		5:42	34,42,58^s	$1^h 18^m$ E	2″	324	50/.6	112Å/ 2.0	2.99	B3 V	NeA	10^s	–	IIa-O	15^m metol sulfite	Tnr, Dm	
	β Ori	5 06.6	−5 07	〃		5:48	6,12,18^s	$1^h 14$ E					2.93	A3 III							
	7 Ori	5 16.4	−6 52	〃		5:55	15,21,27^s	$1^h 17$ E					3.47	B5 III							
625	19 Aur	$5^h 18^m.4$	+33° 56′	〃	6:09.15	6:18	210,240,270 S	$0^h 55^m$ E	〃	〃	〃	〃	5.30	A5 II	〃	12^s	–	〃	〃	〃	
	λ Lep	5 18.4	−13 12	〃	6	6:30	30,32,35^s	$0^h 33$ E					4.04	B0.5 IV							
	δ Ori	5 30.7	−0 19	〃		6:36	8,10,12^{tr}	$0^h 49$ E					2.02	O9.5 II							
	ν Ori	5 30.7	−7 20	〃		6:43	37,43,49^s	$0^h 43$ E					4.36	B0 V							
	42 Ori	5 34.2	−4 51	〃		6:49	37,43,49^s	$0^h 41$ E					4.40	B1 V							
	ε Ori	5 34.2	−5 56	〃		6:54	12,15,18^{tr}	$0^h 36$ E					2.52	O9 III							
626	θ Ori	5 37.5	−2 37	〃	7:04	7:06	18,24,30^s	$6^h 26^m$ E	〃	〃	〃	〃	3.56	O9.5 V	〃	〃	–	〃	〃	〃	
	ζ Ori A	$5^h 39^m.5$	−1° 58′	〃		7:11	4,6,8^{tr}	$0^h 24$ E					1.56	O9.7 Ib							
	κ Ori	5 46.6	−9 41	〃		7:15	5,7,9^{tr}	$0^h 27$ E					1.87	B0.5 Ia							
	χ^2 Ori	~~5 08.4~~	+20 08	〃		7:28	88,110,132 S	$0^h 29$ E					4.91	B2 Ia							
	13 Mon	6 31.6	+7 21	〃		7:36	57,63,69^s	$0^h 49$ E					4.50	A0 Ib							
	HD 48434	6 42.3	+3 58	〃		7:58	190,209,228 S	$0^h 40$ E					5.89	B0 III							
627	ε CMa	$6^h 57^m.7$	−28° 56′	〃	8:07	8:09	4,5,6^{tr}	$0^h 44$ E	〃	〃	〃	〃	1.29	B2 II	〃	〃	—	〃	〃	〃	
	o^2 CMa	7 02.0	−23 48	〃		8:15	15,20,25^{tr}	$0^h 42$ E					2.93	B3 Ia							
	ζ CMa	6 55.1	−17 01	〃		8:22	38,44,50^s	$0^h 25$ E					4.31	B3 II							
	γ CMa	7 02.6	−15 36	〃		8:29	26,31,36^s	$0^h 29$ E					4.01	B8 II							
	η CMa	7 23.1	−29 15	〃		8:33	8,11,14^m	$0^h 45$ E					2.35	B5 Ia							
	HD 71155	8 24.6	−3 50	〃		8:42	30,35,40^s	$1^h 38$ E					3.88	A0 V							
~~628~~					~~0:45~~	~~00:45~~	~~+30^s~~														
628	δ Sgr	18 53.7	−26 20	Nov 4 1974	23:50	23,58	4,5,6^s	$3^h 11^m$ W	1½-2″	324	50/.6	112Å/ 2.0	1.81	B2.5 V	NeA	12^s	–	IIa-O	15^m metol sulfite	Tnr, Dm	T: 56 H: 38
	δ Aql	19 24.2	+3 04	Nov 5 1974		00:13	30,36,42^s	3 04 W					3.68	F0 IV							
	κ Aql	19 35.5	−7 05	〃		00:45	99,108,117^s	3 25 W					4.95	B0.5 III							
	α Del	20 38.5	+15 50	〃		00:55	36,45,54^s	2 30 W					3.71	B9 IV							
	69 Cyg	21 24.8	+36 33	〃		1:35	432,492,552 S	2 25 W					5.87	B0 Ib							
	α PsA	22 56.3	−29 45	〃		1:43	3,4,5,6^{tr}	1 01 W					1.25	A3 V							
629	λ Peg	23 40.8	+1 39	〃		2:03	91,105,119^s	0 35 W	〃	〃	〃	〃	4.72	A7 V	〃	〃	–	〃	〃	〃	
	ω^2 Aqr	23 41.4	−14 41	〃		2:12	40,48,56^s	0 45 W					4.47	B9.5 V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
629	γ Peg	$0^h 11^m.9$	+15° 03'	Nov. 5 1974	2:21	2:25	9,11,13^s	$0^h 27^m$ W	1½-2"	234	50/.6	1121Å/ 7.0	2.60	B2 IV	Ne Ar	12^s	—	IIa-O	15^m metol sulfite	Tnr, Dm	
	β Ari	1 53.3	+20 41	"		2:36	14,16,18^s	1^{h}02^{m}E					2.78	A5 V							
	β Tri	2 08.1	+34 52	"		2:55	27,33,37^s	0 58 E					3.14	A5 III							
	HD 18331	2 55.6	−3 49	"		3:21	102,120,138^s	1 20 E					5.25	A1 V							
630	40 Per	3 40.8	+33 53	"	4:25	4:57	236,268,300^s	0 29 E	"	"	"	"	4.95	B0.5 V	"	"	—	"	"	"	
	o Per	3 42.6	+32 12	"		5:08	48,56,64^s	0 20 E					3.88	B1 III							
	17 Tau	3 43.4	+24 02	"		5:19	31,35,38^s	0 09 E					3.58	B6 III							
	18 Tau	3 43.7	+24 46	"		5:35	182,217,252^s	0 16 W					5.57	B8 V							
	19 Tau	3 43.7	+24 23	"		6:01	56,63,70^s	0 32 W					4.19	B6 IV							
	η Tau	3 46.0	+24 02	"		6:08	13,17,21^s	0 37 W					2.78	B7 III							
631	27 Tau	3 47.7	+23 59	"	6:16	6:25	30,34,38^s	0 52 W	"	"	"	"	3.93	B8 III	"	"	—	"	"	"	
	θ^2 Tau	4 27.2	+15 49	"		6:34	26,30,34^s	0 23 W					3.59	A7 III							
	β Eri	5 06.6	−5 07	"		6:41	9,12,15^s	0 11 W					2.93	A3 III							
	β Ori	5 13.3	−8 14	"		6:44	1,2,3^{tr}	0 14 W					0.10	B8 Ia							
	τ Ori	5 16.4	−6 52	"		6:51	21,24,28^s	0 11 E					3.67	B5 III							
	γ Ori	5 23.8	+6 20	"		6:56	7,11,15^{tr}	0 14 E					1.87	B2 III							
632	40 Per	$3^h 40^m.8$	+33° 53'	Nov. 6 1974	2:34	3:00	205,287,336^s	$2^h 25^m$ E	1-1½"	234	50/.6	1121Å/ 7.0	4.95	B0.5 V	Ne Ar	13^s	—	IIa-O	15^m metol sulfite	Tnr, Dm	
	16 Tau	3 43.3	+24 12	"		3:35	100,150,200^s	1 52 E					5.42	B7 IV							
	22 Tau	3 44.6	+24 27	"		4:27	325,380,435^s	1 00 E					6.41	B9 V							
	η Tau	3 46.0	+24 02	"		4:33	10,12,14^s	0 56 E					2.78	B7 III							
	η Aur	5 04.8	+41 12	"		4:43	30,38,46^s	2 06 E					2.99	B3 V							
	β Ori	5 13.3	−8 14	"		4:54	1,2,3^{tr}	2 02 E					0.10	B8 Ia							
633	λ Lep	5 18.4	−13 12	"	5:05	5:10	30,37,44^s	1 52 E	"	"	"	"	4.04	B0.5 IV	"	"	—	"	"	"	
	δ Ori	5 30.7	−0 19	"		5:20	4,5,6^s	1 55 E					2.02	O9.5 II							
	ν Ori	5 30.7	−7 20	"		5:29	30,36,42^s	1 46 E					4.36	B0 V							
	α Lep	5 31.6	−17 5	"		5:37	6,8,10^s	1 38 E					2.77	F0 Ib							
	42 Ori	5 34.2	−4 51	"		5:58	30,36,42^s	1 19 E					4.40	B1 V							
	ι Ori	5 34.2	−5 56	"		6:03	6,8,10^s	1 15 E					2.52	O9 III							
634	ε Ori	$5^h 34^m.9$	−1° 13'	"	6:17	6:18	2,3,4^s	$1^h 00^m$ E	"	"	"	"	1.51	B0 Ia	"	"	—	"	"	"	
	δ Ori	5 37.5	−2 37	"		6:28	14,16,18^s	0 53 E					3.56	O9.5 V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
634	ζ Ori A	$5^h 39.^m5$	$-1° 58'$	Nov.6 1974	6:33	6:36	$2,3,4^s$	$0^h 48^m$ E	$1\frac{1}{2}''$	234	50/.6	112Å/ 7.0	1.56	09.7Ib	NeAr	13^s	—	IIa-O	15m Metal Sulfate	Tnr	
	κ Ori	5 46.6	−9 41	"		6:41	$2\frac{1}{2},3\frac{1}{2},4\frac{1}{2}^s$	0 46E					1.87	B0.5Ia							
	χ^2 Ori	6 02.4	+20 08	"		7:05	$60,80,100^s$	0 39E					4.91	B2 Ia							
	19 Aur	5 18.4	+33 56	"		7:35	$180,240,^{300s}$	0 34W					5.30	A5 II							
635	13 Mon	$6^h 31.^m6$	$+7° 21'$	"	7:59	8:04	$35,45,55^s$	$0^h 11^m$ E	"	"	"	"	4.50	A0.Ib	"	"	—	"	"	"	
	HD48434	6 42.3	+3 58	"		8:20	$120,140,160^s$	0 05E					5.89	B0 III							
	ι CMa	6 55.1	−17 01	"		8:28	$25,30,35^s$	0 10 E					4.31	B3 II							
	ε CMa	6 57.7	−28 56	"		8:33	$2,3,4^s$	0 08E					1.29	B2 II							
	o^2 CMa	7 02.0	−23 48	"		8:39	$6,8,10^s$	0 05E					2.93	B3 Ia							
	η CMa	7 23.1	−29 15	"		8:45	$4,5,6^s$	0 21E					2.35	B5 Ia							
636	β Ori	$5^h 13.^m3$	$-8° 14'$	Nov.7 1974	3:33	3:35	$2,3,4,5^s$	$3^h 14^m$ E	2"	234	50/.6	112Å/ 7.0	0.10	B8 Ia	NeAr	13^s	—	IIa-O	15m Metal Sulfate	Tnr	
	ζ Ori A	5 39.5	−1 58	"		3:49	$6,9,12^s$	3 29 E					1.56	09.7Ib							
	κ Ori	5 45.6	−9 41	"		4:02	$7,10\frac{1}{2},14^s$	3 24E					1.87	B0.5Ia							
	δ Ori	5 30.7	−0 19	"		4:09	$8,12,16^s$	3 00E					2.02	09.5II							
	HD21483	3 27.2	+30 17	"		5:12	22^m	0 07W					7.38	B3 III							
	42 Ori	5 34.2	−4 51	"		5:29	$44,54,64^s$	1 43 E					4.40	B1 V							
637	3 Gem	6 08.2	+23 07	"	5:48	5:57	6^m	1 50E	"	"	"	"	5.96	B2.5Ib	"	"	—	"	"	"	
	HD43818	6 17.8	+23 30	"		6:33	19^m	1 23E					7.21	B0 II							
	HD43836	6 17.8	+23 17	"		7:24	32^m	0 33E					7.42	A0 II							
	ε CMa	6 57.7	−28 56	"		7:37	$3,5,7^s$	0 54E					1.29	B2 II							
	o^2 CMa	7 02.0	−23 48	"		7:45	$12,15,18^s$	0 56E					2.93	B3 Ia							
	η CMa	7 23.1	−29 15	"		7:51	$7,10,13^s$	1 10 E					2.35	B5 Ia							
638	Ly810-#6	$19^h 44.^m2$	$+27° 46'$	Nov.8 1974	0:03	1:21	75^m	$4^h 01^m$ W	2"	234	50/.6	112Å/ 7.0	~14	—	NeAr	2^s	—	IIa-D	15m Metal Sulfate	Tnr	T:60 H:388
639	HD47240	$6^h 36.^m5$	$+4° 59'$	"	4:08	4:33	10^m	$3^h 40^m$ E	"	"	"	"	6.29	—	"	13^s	—	IIa-O	"	"	
	HD45827	6 28.7	+9 03	"		5:01	13^m	3 04 E					6.70	—							
	HD45789	6 28.6	+7 07	"		5:35	14^m	2 30 E					6.96	—							
	HD47887	6 39.8	+9 29	"		6:01	12^m	2 15 E					6.96	—							
	HD47417	6 37.5	+6 56	"		6:23	11^m	1 50E					6.98	—							
	HD47984	6 40.2	+6 08	"		6:45	12^m	1 30 E					~7	—							
	HD45910	6 29.2	+5 53	"		7:12	$11\frac{1}{2}^m$	0 53E					7.09	—							AX Mon

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
639	HD 45911	$6^h 29.^m1$	+4° 21′	Nov. 8 1974	7:21	7:42	12^m	$0^h 23^m$ E	2″	334	50μ/.6	1128Å/7.0	7.17	—	NeAr	13^s	—	IIa-O	15^m Metol sulfite	Tnr	
	HD 47382	6 37.2	+4 38	"		8:10	13^m	0 02E					7.31	—							
640	Lynds 810 Turner 6	$19^h 44.2$	+27° 46′	Nov 9 1974	00:01	1:21	80^m	$4^h 05^m$ E	2″	334	100μ/.6	1128Å/7.0	14:	—	NeAr	2^s	-	IIa-D	15^m Metol Sulfite	TnR	T:55° H:47%
641	HD 48717	$6^h 43.^m5$	+3° 43′	"	4:07	5:05	36^m	$3^h 10^m$ E	"	"	50μ/.6	"	7.6	—	"	13^s	—	IIa-O	"	"	
	HD 47107	6 35.9	+5 49	"		5:52	27^m	2 16 E	"				7.7	—							
	HD 47777	6 39.3	+9 41	"		6:39	26^m	1 31 E	"				7.78	—							
	HD 46484	6 32.6	+4 41	"		7:24	29^m	0 40 E	$1\frac{1}{2}$″				8.10	—							
	HD 47088	6 35.8	+6 05	"		8:14	34^m	0 07W	"				8.3	—							
	η Car	10 44.7	−59 25	"		8:34	$10,20,30^{4otr}$	3 42E	"				0:	plc.							
642	HD 47088	6 35.8	+6 05	Nov. 13 1974	3:19	4:40	68^m	3 11E	2″	332	50μ/.6	1128Å/7.0	7.78	—	NeAr	13^s	—	IIa-O	15^m metol Sulphite	Tnr	T:52° H:47%
	HD 46883	6 34.8	+10 18	"	4:51	5:53	48^m	1 57E	"				8.22	—							
	HD 49640	6 48.4	+7 53	"	6:01	6:50	40^m	1 12E	"				8.31	—							
643	32 Gem	6 44.5	+12 43	"	7:06	7:17	9^m	0 41E	"				6.67	A9 III	NeAr	13^s		IIa-O	15^m metol Sulfite	Tnr	
	γ CMa	7 02.6	−15 36	"		7:24	$27,36,45^s$	0 53E	"				4.01	B8 II							
	ρ Gem	7 27.5	+31 50	"		7:32	2^m	1 09E	"				4.48	A1mF1							
	HD 71155	8 24.6	−3 50	"		7:41	$27,36,45^s$	1 57E	"				3.88	A0 V							
	κ Hya	9 39.1	−14 13	"		7:52	$72,90,108^s$	3 00E	"				4.90	B5 V							
	HD 86606	9 55.7	−71 17	"		8:08	6^m	3 00E	"				6.27	B1 Ib							
	α Leo	10 07.0	+12 05	"		8:18	$6,8,10^m,12$	3 04E	"				1.25	B7 V							
644	ζ Leo	10 15.3	+23 32	"	8:25	8:29	$56,63,70^s$	3 00E	"				3.75	F0 III	NeAr	13^s	-	IIa-O	15^m Metol Sulphite	Tnr	
	β Sex	10 29.2	-0 30	"		8:34	122^s	3 08E	"				4.96	B6 V							
	θ Leo	11 12.9	+15 34	"		8:42	$33,45,54^s$	3 44E	"				3.34	A2 V							
	γ Vir AB	12 40.4	−1 19	"		8:49	120^s	5 04E	"				3.85	F0 V							1 component only
	HD 191746	20 9.5	+28 21	Nov. 14 1974	0:27	1:06	30^m	3 44W	"				6.8:	B2 V							
645	SMC-OA3	1 04.6	−72 11	"	1:55	2:55	50^m	0 40W	"	"	100μ/.6	"	14.5	—	"	1^s	—	IIa-D	"	Tnr	accidentally exposed when plateholder removed
646	HD 47360	6 37.1	+4 39	Nov. 14 1974	5:10	6:14	55^m	2 35E	1-2″	332	50μ/.6	1128Å/7.0	8.32	—	NeAr	30^s	—	IIa-O	15^m metol Sulphite	Tnr	T:53°F, H: 48%
	HD 46783	6 34.3	+9 52	"		7:15	45^m	1 31E	"				8.37	—							
	HD 46867	6 34.6	+5 20	"		8:21	40^m	0 26E	$1\frac{1}{2}$″				8.52	—							
	HDE 259597	6 32.2	+8 21	"		9:42	52^m	0 59W	"				8.71	—							
	HD 47398	6 37.3	+4 39	Nov. 15 1974	3:40	5:16	86^m	2 28E	$1\frac{1}{2}$″				8.73	—							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
646	HDE 266098	6h 53m.0	+9° 29'	Nov 15 1974	5:30	6:39	60m	1h 21m E	1½"	322	50μ/.6	112B/ 7.0	8.74	—	Neon	30s	—	IIa-O	15m metal sulphate	Tnr	T:55°F, H:43%
	HD 44498	6 21.0	+8 20	"	6:49	7:55	56m	0 27W	"				8.75	—							
	HD 47088	6 35.8	+6 05	"	8:01	8:26	21m	0 43W	"				7.78	—							
647	HD 92964	10 41.7	−59 05	"	8:43	8:54	15m,182, 2085	2 55E	"	"	"	"	5.63	B2.5Ia	"	"	—	"	"	Tnr	
648	SMC-OA3	1 04.7	−72 15	Nov 17 1974	0:16	1:41	90m 84	0 24E	1½"	322	50μ/.6	112B/ 7.0	14.5	—	Neon	1s	—	IIa-D	"	Tnr	
649	HD 44153	6 19.3	+7 35	"	3:28	5:30	106m	1 49E	"	"	50μ/.6	"	8.85	—	Neon	30s	—	IIa-O	"	Tnr	T:56°F, H:40%
	HDE 258853	6 29.9	+9 49	"	5:43	7:01	63m	0 29E	"				8.86	—							
	HDE 259431	6 31.7	+10 21	"	7:08	8:35	76m	1 04W	"				9.02								
650	HD 47354	6 37.1	+4 54	Nov 20 1974	2:37	4:33	108m	2 52E	2"	316	50μ/.6	112B/ 7.0	8.96	—	Neon	30s	—	IIa-O	15m Metal sulfate	Tnr	T:52°F, H:40%
	HDE 256575	6 22.8	+10 37	"	4:47	8:00	182m	0 50W	3"				9.86	—							
651	HDE 259431	6 31.7	+10 21	Nov 21 1974	2:35	4.45	116m	2 31E	2"	"	"	"	9.02	—	"	"	—	"	"	Tnr	T:54°F, H:44%
	HD 48055	6 40.5	+9 32	"	5:01	6:23	73m	1 20E	"				8.93	—							
	HDE 259454	6 33.3	+8 23	"	6:40	8:27	88m	1 11W	"				9.27	—							
	HDE 262042	6 39.9	+9 14	Nov 22 1974	2:37	5:15	150m	2 04E	1½"				9 07	—						Tnr	T:56°F, H:39%
	HDE 259440	6 31.6	+5 49	"	5:28	8:00	140m	0 49W	"				9.72	—							
		1974			UT																
652	71 AQL	20h 36m.8	−01° 13'	23 Nov 1974	C0 35	C1 35	1/2, 6m	3h 37m W	1.5"	320	100μ/.8	112/ 7.0	5.24	K1	Ne N	20s	—				T:40° H:38% W:0-5 mph
	θ CAP	21 04.3	−17° 15'		C1 05	C1 11	15,30,38,1m	3h 31m W	1.5				4.04	A2							
	χ CAP	21 38.4	−16 48		C1 17	C1 25	15,30,1½m	3h 10½m W	1.5				4.6	A2m							
	ζ CAP	21 45.4	−16 10		C1 36	C1 37	8,11,13,2,4s	3h 10½m W					5..	A2m							
	L AQR	22 04.8	−0 57		C1 46	C1 47	10,20,40s	3h 06m W					4 2	B8							
	ε AQR	22 15.3	−7° 54		C1 56	C1 57	20,40,80	3h 07m W					5.15	B9							
653	"	"	"	"	C2 36	C2 41	1½, 3m	3h 50m W													
	δ AQR	22 26.1	−0° 59'		C2 44	C2 47	1, 2, 4, 8, 16, 32s	3h 50m W					3.3	F0							
	ζ AQR AB	22 27.3	−0° 26		C2 50	C2 54	5,10,20,40s	3h 52m W					4.3+4.4	F2							
	γ AQR	22 33.8	−0 11'		C3 00	C3 00	10,20,40s	3h 56m W					3.9	B8							
	ε AQR	22 48.0	−13 42		C3 05	C3 13	1/2, 2, 4m	3h 56m W					3.6	A1							
	β AQR	22 53.1	−15 55		C4 15	C4 21	5,10,20,40s	4h 52m W					3.4	A3							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1970	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV.	OBS	REMARKS
654	γ CMA	07 23.1	-29° 18'	23 NOV	C52C	C523	1, 2, 4, 8^s.	2^h 3^m E	1.5/clear	3.20	100μ/.8	7.9/11.2	2.2	O5	NeA	20^s	—	II-C	MWP-2	WJ	T=58F H=29%
CPD	-28° 1984	07 23.2	-28° 49'	1974	C542	0623	5, 10, 20^m	1^h 37^m E	"				6.6:	B5:					7 min		Wind 10 mph
	HD58260	07 22.4	-36° 16'		C628	0634	3.6^m	1^h 15^m E	"				6.6	B3					67°F		
	HD59550	07 28.2	-31° 26'		C643	C651	10, 80, 160^s	1^h 12^m E	"				5.6	B2							
	HD59864	07 29.7	-34° 03'		C706	0716	10^m	0^h 48^m E	1"/clear				7.4	B0:							
	HD61355	07 36.6	-32 22		C735	C845	1^h 10^m	0° 3,^{m} W	<1'				8.5	--							
	o^2 CMA				C85C	C852			"					B3 Ia							
655	ξ DEL AB	20 45.3	+15 58	24	0010	0017	1/2, 1, 2^m	3^h 3^m W	1.5	3.20	100μ/.8	7.9/1.2	5.3	K1	NeA	20^s		II a-C	MWP-2	WJ	Wide pair, but lined up in R.A.
	R SCT	18 45.9	-05 47	NOV 1974	CC24	0039	15^m	5^h 24^m W	2"				6.1	G0					67°F		Tape by wind
	Y AQR	23 14.3	-09 15		0045	0050	1/2, 1, 2^m	1^h 4^m W	1"				5.3	K0					7 min		
	χ PSC	23 15.6	+03 07		0055	0100	1/2, 1, 2^m	1^h 15^m W	1"				4.6	G7							possible moon
	Y^2 AQR	23 16.6	-09 22		0107	0112	12, 18, 36^s	1^h 26^m W	"				4.2	B5							
	98 AQR	23 21.4	-20 16		0115	0120	20, 40, 80^s	1^h 29^m W	"				5.1	K0							
	99 AQR	23 24.6	-20 46		0122	0133	~~1, 2, 4^m~~	1 37^m W	"				5.9	K5							
656	α AND	00 06.8	-28° 55'	"	0155	0158	1^s, 2^s, 3^s, 6^s.	1^h 21^m W	"	"	"	"	1.98	B9p	"	"		"	"	"	No N.D. FILTER
	γ PEG	00 11.7	+14 58		0201	0205	1, 2, 3, 6, 12^s	1^h 25^m W	"				2.6	B2							
	ε AND	00 36.9	+29° 09'		0208	0213	20, 40, 100^s	1^h 6^m W	2"				5.3	G8							
	ζ AND	00 45.7	+24 05		0217	0231	1.5, 3, 6^m	1^h 15^m W	"				6.4	K1 II							
	δ PSC	00 47.2	+07° 26'		0235	0248	3/4, 1.5, 3, 6^m	1^h 30^m W	1"				5.94	K5							
	η AND	00 55.6	+23 14		0250	0255	20, 40, 80^s	1^h 30^m W	2"				5.4	G8							
657	ε PSC	01 01.4	+07 45		0330	0336	15, 30, 1^m	2^h 5^m W	1"				5.2	K0							
	η PSC	01 29.9	+15 09		0339	0342	10, 20, 40^s	1^h 42^m W	1.5"				4.6	G8							
	ν PSC	01 39.9	+05 22		0345	0351	40, 80, 160^s	1^h 40^m W	1.5"				5.8	K3							T=56° H=46%
	ο PSC	01 43.9	+09 01		0354	0359	25, 50, 100^s	1^h 45^m W	2"				5.4	G4							
	ω CET	02 18.0	-03 09		0407	0538	1 1/2 hour	2^h 50^m W	1"				10:	M							(-100')
	η GEM	06 13.3	+22 26		0635	0639	20, 50, 100^s	0^h 4^m E	2"				4.9v	M3							
	κ AUR	06 13.5	+29 29		0643	0649	20, 40, 80^s	0^h 6^m W	2"				5.4	G8							
658	μ GEM	06 21.2	+22 27		0700	0705	20, 40, 100^s	0^h 15^m W	2"				4.6v	M3							
	ν GEM	06 27.4	+20 09		07 08	0712	6, 12, 24^s	0^h 15^m W	3"				4.0	B7e							
	HD63804	7 48.2	-33 18		0722	0752	30^m	0^h 0^m W	2'				9.0	Be							

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
659	[illegible] Psc	[illegible]	[illegible]	25 Nov	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	+12 14	1974	[illegible]	[illegible]		[illegible]					[illegible]	[illegible]					[illegible]		
	[illegible]	23 36.3	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	23 40.7	[illegible]		0103	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	[illegible]	23 57.8	[illegible]		0110	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							[illegible]
	[illegible] Peg	00 11.7	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
					0																
660	ε Psc	01 01.7	[illegible]	"	0135	0140	[illegible]	[illegible]		"	"	"	[illegible]	[illegible]							
	τ Psc	01 10.1	+19 55		0145	0149	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	ν Psc	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]								
	[illegible]	"	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]								
661	[illegible] Ari	01 53.0	[illegible]	"	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	[illegible] Ari	01 05.8	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	35 Ari	02 42.0	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	39 Ari	02 46.4	[illegible]		0309	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	41 Ari	02 48.6	[illegible]		[illegible]	0318	20,40,80,10	[illegible]	[illegible]				3.5	[illegible]							multiple [illegible]
	[illegible] AB	02 57.8	[illegible]		[illegible]	0327	½,1,2	[illegible]	[illegible]				[illegible]	[illegible]							not separated
662	[illegible]	07 37.0	[illegible]	"	0402	0408	5m	[illegible]	[illegible]				[illegible]	[illegible]							T=53° H=40% No wind
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	119 Tau	05 30.7	+18 35		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	CD-31°4854	07 37.7	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	CD-31°4862	07 38.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	CD-31°4864	07 38.[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							[illegible]

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A. DIRECT 19	DEC. 75 READOUT	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
663	JUP SAT.	22h43m.7	−09° 29′	26	CC36	CC42	5m / 10m	1h35m W	1".5 / CLEAR PHOT.	2.86	50µ / 1.2	67.4 / 445	5:	G2 V	N+A	40s	NONE	IIa C	MEIOL	4	T=55° F H 70%
	50TH CET	CC 17.9	−09 03	NOV 1977	0053	0105	1.5, 3, 6m / 5m	0h25m W	1.5-2 / clear	"			4.8	K2 III					SULPHITE 15 MIN. 67°F		(ONLY 1 SPACE BETW EXP.)
	θ CET	001 22.5	−08 24		0110	0121	" / 4.5m	0h24m E	2" / "				4.7	K0 III							
	ζ CET	01 42.7	−16 09		0123	0133	50, 100, 200 / 5m	0h32m E	2" / "				4.2	G8 V							
	δ CET	02 37.9	+0 16		0136	0146	35, 70, MC / 2m	1h15m E	2" / "				3.85	B2 IV	N+A	40s					
664	ξ' CET	02 11.3	+08 43	"	0246	0324	5, 10, 20m / 10m	0h41m W	1".5 / CLEAR	"	"	"	5.5	G8 III CN	-2"	"	"	"	"	"	(2 TRIALS - DRIFT)
	μ CET	02 43.2	+09 58		0327	0341	2, 4, 8m / 4m	0h36m W	" / "				4.6	F6 IV							T=56° H=40% WIND 5 mph
	α CET	03 00.7	+03 59		0344	0357	1.5, 3, 6m / 4.5	0h34m W	2" / "				4.2	M2 III							
	σ TAU	03 23.2	+08 55		0400	0421	2, 4, 8m / 4m	0h30m W	1".5 / "				4.5	G8 III							(discovered that 1.5 Blue filter was left in, took off for this run.)
665	119 TAU	05 30.2	+18 34	"	0506	0519	13m	0h33m E	1".5 / "	"	"	"	6.7	M2 Ib	"	"	"	"	"	"	
	CD-31° 4879	07 38.6	−31 29		0540	0608	28m	1h53m E	" "				8.7	B5:							
	CD-31° 4906	07 39.5	−31 29		0611	0638	27m	1h23m E	1".5 / "				8.7	A0:							
	CD-31° 4884	07 38.9	−32 07		0643	0814	91m /	0h13m W	1".5 / "				7.4	A0:							
	CD-31° 4910	07 39.6	−31 38		0829	0830	10m /	0h30m W	" "				7.8	G0 I							= R Pup
	CD-31° 4940	07 40.8	−32 02		0834	0845	10m /	0h45m W	" "				7.0	F0							T=53° H=40% WIND 5 mph
		(MOON 1h52m +15°)		27 NOV	→ DRIVE PROBS.																
666	BD+15° 6C3	04 13.8	+15° 16′	27 NOV 1974	0220	0232	1, 3, 6m /	2h0m E	1" / PHOT.	3.20	100µ / .8	112 / 70	0.7	F3 V	N+A	20s	—	IIa C	MEIOL		T=55° F H 15% HYMEL: 5:1
	" +16° 579	04 17.9	+16° 24′		0238	0245	6m /	1h48m E	" / "				7.4	F8 V							
	+14° 682	04 18.6	+14 58		0410	0417	1/2, 1, 2m /	0h20m E	1" / "				5.5	A7 V							
	CD-31° 4911	07 39.6	−31 41		0505	0537	32m /	2h22m E	1" / "				9.0	B?							
	-31° 4935	07 40.3	−31 42		0544	0700	1h, 2m /	0h58m E	" "				9.7	K5							
	-31° 4926	07 40.0	−31 23		0702	0725	23m /	0h32m E	" "				8.7	A5							T=5° H 57% WIND 5 mph
	-31° 4946	07 41.0	−31 44		0752	0809	17m /	0h12m W	" "				8.4	B5							
	-31° 4987	07 42.8	−31° 41′		0814	0821	7m /	0h22m W					7.4	F0							
	η CMa	07 28.8	−29 19		0835	0837	1m /	0h58m W	1".5 / "	2.80	50µ / 1.2	67.4 / 445	2.4	B5 Ia		60s					(Changed not Blue filter, took off for this run.)
		(MOON 2h46m +18°)																			
667	JUP SAT.	22 43.9	−09 24	28 NOV	0007	0042	4, 7, 8 / 8m	1h45m W	2-3" / PHOT.	2.80	50µ / 1.2	67.4 / 445		G2 V					Met-V		
	χ PEG	00 11.5	+15 01	1974	0047	0055	1/2, 1, 2, 4m / 2m	0h30m W	2-3" / "				2.6	B2 IV					to 67°F		
	ο AND	00 15.2	+38 29		0101	0127	1-2, 3, 4m /	0h59m W	2" / "				4.7	A2 V					15 mm		
	δ AND	00 37.4	+30 44		0131	0203	4, 8, 16m / 5m	0h10m W	2-3" / "				4.5	K5 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. (1900)	DEC.	DATE UT	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR	H.A. END	SEE. TRANS.	CAM. FOCUS	SLIT	GRATING TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
668	30 Psc	00h 01.4	-06° 11'	28	[illegible]	0251	20s	2h 17m W	1.5 / PHOT	2.86	50µ / 2	67 / 4.85	6.0	M3.5 III	NeA	60s	NONE	IIa-O	MEDIUM-SLOW		T=52°F H=40% W=6.5MPH
	38 Psc	00h 3.7	-05 52	Nov 1977	0233	0252	5m	2h 26m W	" / "				5.7	K1							
	η ERI	02 55.0	-09 01		0245	0252	6m	2h					5.0	K1							
	[illegible]	04 11	[illegible]		[illegible]	0256	3.5	1h 27m					4.8	F2							
	40 ERI	04 [illegible]	-07 42		0258	0303	5m / 6m	1h 24m E	" "				[illegible]	B1							
	ν ERI	04 [illegible]	[illegible]		0306	[illegible]	[illegible]	1h [illegible] E					[illegible]	B2							
	μ ERI	04 44.0	-05 19		[illegible]	0318	3m	1h [illegible] E					3.9	B5							
	W ERI	04 51.4	-05 31		0317	0321	3.5	1h 48m E					4.6	A9							
	2 CET	00h 02.3	-[illegible]		[illegible]	[illegible]	3m / ✓	3h 15m W					4.5	B9							
	[illegible] CET	00 11.2	19 [illegible]		0336	0350	13m / +25s	3h 24m W					[illegible]	M1							(DEC ROUNDOUT CHANGES WHEN SWITCHING FILAMENTS SWITCH NOW.)
	[illegible] CET	[illegible]	[illegible]		[illegible]	0354	50s / ✓	3h [illegible] W					3.1	K1							
	[illegible] CET	01 07.1	[illegible]		0400	0404	3.5 / 7m	2h 46m E					4.6	K3							VIGNETTED BY [illegible]
	[illegible]	01 50.0	-10 28		0408	0413	4m / 4.5m	2h [illegible] W					4.9	K2							
669	CD-31°949	07 42.8	-31° 15'	"	0538	0544	26s / ✓	2h 11m E		3.20	50µ / .8	112 / 7.0	8.7	G5.	NeA	20s	NONE	IIa-O	MEDIUM		
	[illegible]	[illegible]	-3[illegible] 11		0549	0611	25m / ✓	1h [illegible] E					8.6	B0							
	[illegible]	[illegible]	[illegible]		0620	0651	31m / ✓	1h 6m E					8.3	A0.							WIND = 10 T=45° [illegible] B.C.
	[illegible]	[illegible]	[illegible]		[illegible]	0739	40m / ✓	0h 20m E					4.0	A0.							
	[illegible]	[illegible]	[illegible]		0745	0747	35s / ✓	0h 2m E					7.1	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	0841	33m / ✓	0h 40m W					[illegible]	[illegible]							faint Clouds.
670	JUP. SAT.	[illegible]	[illegible]	29	0031	0040	[illegible]	0h 48m W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		60s	—	—	—		T=41° H=78% NO WIND.
	[illegible] CET	[illegible]	[illegible]	Nov 1977	0045	0102	[illegible]	0° 46m W	1.5				[illegible]	[illegible]							
	ν AND	00 48.1	+40 52		01 [illegible]	0146	48s / 10s	0° 50m W	"				[illegible]	F5 V.							T=48° H=77%
	β AND	01 08.1	+35 26		0148	0208	2m 10s / 3s	0h 50m W	3"				[illegible]	[illegible]							W=0-5
	τ CET	01 42.8	-16 03		0211	0220	3m 6s / 3	0h 30m W	1.5"				4.2	G8 V.							T= H=90%
671	30 PSC	00 00.6	-06 11	"	0252	0319	25m / 30m	3h 12m W	2"	"	"		[illegible]	M1							
	τ CET	[illegible]	[illegible]		0332	[illegible]	15m	3h 49m W	2.0				6.1	M1							T=7 H=52%
	[illegible]	01 [illegible]	-10 [illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	K3							
	[illegible] CET	01 [illegible]	-[illegible] 24		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	K2							
	π CET	02 43.0	-13 58		0457	0503	5m / 4m	2h 14m W	3"				[illegible]	B7							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE UT	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
671	1 ERI	02 43.3	-18 37	29	0505.3	0517	9m / 6m	2h25mW	2" / FILT	2.86	50µ / 1.2	61 / 4.45	4.9	F6	NeA	6m	NONE, II-O	IIaZ			T=44° H=41% IV=6.45
(CONT)	11 ERI	03 45.0	-12 11	NOV	0521	0600	34m 36m	2h08mW	" "				6.1	M2				J-aF, IIIa-J			
	x ERI	03 56.7	-13 36	1974	0603	0616	12m 10m	2h10mW	" "				4.6	M0							
	53 ERI	04 37.0	-14 21		0618	0637	19m 14m	1h53mW	2.5/ "				5c	K2							VALLEYS FILLED W/ FOG 11=96%
	54 ERI	04 39.3	-19 41		0641	0726	45m CAL 40m	2h40mW	2" "				5.7	M4							
	L LEP	05 11.0	-11 55		0731	0737	5m 4.5m	2h20mW	" "				4.4	B8							
	μ LEP	05 11.6	-16 14		0741	0744	2m 1.0m	2h28mW	2" "				3.2	B9							
	K LEP	05 12.0	-12 59		0748	0754	4m+ 4m	2h38mW	2" "				4.3	B8							
	λ LEP	05 18.2	-13 12		0758	0802	3m 3m	2h39mW	2" "				4.0	B0.5							NO WIND T=43° H=33%
																					T=44° H=75%
672	o CMa	06 42.8	+48 04	30	0024	0047	23m /	0h9mW	3"	"	"	"	4.5	B?	"	"	"	"	"	"	
	U AND	01 34.6	+41 14	NOV	0050	0112	22m 20m	0h27mE	2" PHOT				4.6	F8 II							
	ν TRI	01 51.2	+29 28	1974	0115	0133	2,4,8m 4m	0h22mE	2" -				3.9	F6 III							
	κ ARI	02 05.3	+23 19		0137	0147	1½,3,6 4m 3m	0h26mE	1.5 /				3.8	K2 III							
	δ CET	02 (37.9)	+00 15		0153	0201	1,2,4m 3m	0h40mE	1.5 / "				3.8	G5 IV							G-10 T=41 H=67%
673	η ERI	02 54.9	-01 01	"	0219	0233	1.2m 10m	0h25mE	2 / "	"	"	"	5c	K1							
	TI CET	02 42.7	-13 55		0236	0239	2m /	0h7mE	1.5 "				4.1	B7							
	α SCL	00 57.6	-29 37		0244	0246	2m /	1h45mW	1.5 "				4.1	B8 p							
	ν CET	01 58.5	-21 09		0250	0315	25m V+15m	1h14mW	1.5 "				5.6	M1							
	ν FOR	02 03.4	-29 25		0320	0323	2m 2.5m	1h18mW	1" /				4.5	A0 p							
	τ³ ERI	03 01.1	-23 42		0326	0329	2m 2.5m	0h25mW	" "				4.3	A5							
	α FOR	03 11.0	-29 05		0331	0336	4m 3.5m	0h23mW	1.5 2"				4.4	F8							
	16 ERI	03 18.2	-21 48		0339	0357	20m / +12	0h39mW	1.5-3 "				5.3	M2							
	ε³ ERI	03 32.4	-21 40		0402	0406	5m /	0h30mW	2"				4.2	K8							
	ε⁶ ERI	03 45.5	-23 17		0408	0415	6m /	0h27mW	2"				4.7	F3							
	36 ERI	03 58.7	-24 06		0416	0420	3.5 /	0h18mW	1.5				4.5	A8							
	50 ERI	04 32.4	-29 48		0424	0440	16m /	0h5mW	2" "				5.5	G6							
	ε LEP	05 04.1	-22 22		0442	0459	17m V+10m	0h8mE	2-3" "				4.7	K5							
	-21°1135	05 19.2	-21 13		0501	0507	6 5m	0h9mE	2"				4.7	A0							front Comparison
674	β Lep	05 27.0	-20 44		0524	0526	2m /	0h3mE					3.6	G5							

0532

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U T EXP. BEGIN	U T EXP. END	TOTAL / CORR.	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
.24	γ LEP	05 43.3	-22 25	30	0532	0537	4m / 3m	0h 7m E	2" PHOT	-2.86	50µ / 1.2	67 / 448	4.1	F6	Na	60s	Na C	IIa-O			T=15.7 H=2.2 W=10-20
(CONT)	δ LEP	05 50.0	-20 49	NOV 1977	0539	0549	8m / 6m 45s	0h 3m E	2" "				4.8	G8							
	40 ERI	04 13.9	-07 42		0552	0604	12m / 10m	1h 48m W	1.5" "				5.2	K1							
	β ERI	05 06.3	-05 08		0607	0608	45s / 1m	1h 2m W	1.5" "				2.9	A3							
	7 ERI	05 07.7	-08 48		0611	0613	2m / ✓	1h 3m W	1.5" "				4.1	B2							
	22 ERI	05 20.2	-00 24		0615	0618	3m / 3m 5s	0h 56m W	" "				4.6	B2							
	29 ORI	05 22.4	-07 51		0620	[illegible]	8m / ✓	1h 5m W	1.5" "				5.1	G8							
	4 ORI AB	05 23.1	-02 25		0631	0632	5m / 1m	1h 3m W	1" "				3.1	B2.5							
	-C 1234	05 33.6	-06 02		0636	0639	3m / ✓	1h 3m W	" "				4.5	B0							
	-3 1256	05 58.5	-03 05		0642	0701	15m / 14m	1h 1m W	1.5" "				5.7	K2							
	5 MON	06 13.2	-06 17		0703	0719	16m / 13m	1h 5m W	" "				5.3	K3							
	β MON A	06 23.3	-07 02		0721	0724	3m / ✓	0h 57m W	" "				4.5	B3e							
	β MON B	06 27.4	-07 02		0726	0733	5m / ✓	#1 1h 5m W	" "				5.1	B3Ne							(CLOSEST TO A)
	β MON C	06 27.5	-07 02		0735	0744	8m / 6m	1h 17m W	" "				5.5	B3e							W=10-20
675	S MON	07 10.2	-00 26		0756	0758	2m / ✓	0h 47m W	" CIRRUS MOV. N to N				4.1	A0							T=4.4 H=6.0
.00	χ MON	07 31.8	-09 30		0801	0813	12m / 10m	0h 32m W	" forming over head				4.59	K0							
.08	B2 1197 = 4H 3314	08 24.2	-03 50		0817	0820	3m / 3m	0h 5m E	2" " decreasing				3.41	A0							
.10	μ LEP	05 11.7	-16 10		0830	0831	1m / 2m	5h 20m W	" " decreasing				3.2	B9							Th
.12	Γ LEP	05 45.7	-14 47		0837	0839	2m / ✓	2h 54m W	2" " THICKEN.				3.6	A3							T=4.4 H=5.5 W=20
	3 ERI	05 06.4	-05 11	1 DEC 1977	0716	0719	2m / ✓	2h 16m W	2"+ cirrus				2.9	A3							NEW CCD dewar T=4.7 H=6.5
	4 ORI	05 23.1	-02 29		0721	0723	2m / 1.8m	0h 5m W	2" "				3.1	B0.5							
	4 LEP	05 55.1	-14 10		0726	0730	5m / 2m	1h 35m W	1.5" "				4.0	F0							
	θ LEP	06 05.0	-14 57		0733	0737	3m / 3m 5s	1h 34m W	1.5" " clear				4.7	A1							
	β CMA	06 21.5	-17 57		0739	0740	15s / 10s	1h 22m W	1.5" "				1.7	B1							
	7 ν² CMA	06 35.5	-19 14		0743	0801	16m / 10m	1h 29m W	2" "				5.0	N1							
	8 ν³ CMA	06 36.7	-18 13		0802	0823	20m / 8m	1h 50m W	1.5 2" "				5.0	K1							T=4.6 H=4.7
	χ CMA	06 44.3	-16 42		0828	0829	1½m / 3m	1h 49m W	1.5" "				4.4	A1							W=5" pec Cm
676	ν CET	05 58.5	-21 14	2 DEC 1977	0023	0035	11m / 14m	1h 16m E	1" PHOT				5.6	M1							T=4.6 H=6.0
	ε PHE	00 07.9	-45 55		0039	0046	6m / 5m 5s	0h 46m W	1" "				4.9	K0							
	κ PHE	00 24.7	-43 50		0049	0054	3m / 1.5m	0h 37m W	1.5" "				4.1	A7							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA (R.ENDENT)	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
676	α PHE	00 24 9	-42° 27	2 DEC	0056	0102	4m / 1.5	0h 45m W	1.5 PHOT	2.86	50T / 1.2	47 / 47½	3.5	K0	Neat	Cu	NONE	I. 111 S			T=48° H=57%
(CONT)	μ PHE	00 39.9	-46 15	1974	0104	0115	1m / ✓	0h 43m W	1"				5.6	G8							
	β PHE AB	01 04.9	-46 03		0119	0126	6m / 3m	0h 21m W	2"				4.2	G8							
	γ PHE	01 27.4	-43 27		0128	0139	15m / ✓	0h 15m W	1.5 "				5.0	K5							
	δ PHE	01 30.3	-49 15		0141	0149	5m / 7m	0h 27m W	1.5 "				4.9	K0							
	ψ PHE	01 32.7	-46 27		0152	0213	20m / ✓	0h 21m W	1.5 "				6.0	M4							
	-47°597	01 56.1	-47 33		0215	0227	12m / 11m	0h 40m W	1" "				5.7	G5							
	κ ERI	02 26.2	-47 51		0230	0232	2m / 1.5	0h 15m W	" "				4.1	B5							
	5 ERI	02 38.7	-43 01		0234	0239	4m / ✓	0h 5m W	1" "				4.8	A2							
	θ FAINT	02 57.5	-40 26		0241	0242	40s / ✓	0h 7m E	" "				3.1	A3							
	θ ERI A	02 57.4	-40 22		0257	0300	1m / ✓	10m W	1.5" "				3.2	A3							
677	θ ERI B	02 57.3	-40 23	2 DEC	0315	0320	3m / ✓	3.5m W	1.5 "	"	"	"	4.4	A2	"	"	"	"	"	"	
	82 G. ERI	03 19.0	-43 09	1974	0326	0332	6m / 5m	22m W	1.5 "				5.0	G5							
	γ ERI - III 1106	03 36.3	-40 22		0334	0351	17m / 12m	24m W	1" "				5.-	K0							
	α HOR	04 13.3	-42 21		0354	0402	8m / 6m	2m E	1.5 "				4.9	K1							
	α CAE	04 39.8	-41 54		0404	0408	3.5 / ✓	23m E	" "				4.8	F2							
	η COL	05 28.6	-42 47		0411	0420	8m / 7m	1h 30m E	" "				5.1	K0							
	54 ERI	04 39.4	-19 43		0424	0434	10m / 15m	0h 3m W	" "				3.2	M1Y							
	μ LEP	05 11.7	-16 15		0438	0440	1m / 45s	0h 23m E	1" "				3.2	B9p							
	ν CET	01 58.9	-21 12		0443	0452	9m / 12m	3h 2m W	2" "				5.6	M1							
	ε LEP	05 04.4	-22 25		0454	0458	3m / 4m	0h 2m W	1.5 "				4.7	K5							
	β MON C	06 27.7	-07 13		0503	0509	5m / 4m	1h 10m E	2 "				5.-	F3e							
	α MON	07 39.9	-09 41		0513	0521	8m / 7m	2h 10m E	1.5 "				5.0	K0							
	72² CMi	06 35.7	-09 22		0523	0531	7m / ✓	0h 56m E	2" "				5.0	K1							
	ε CMa	06 55.0	-12 11		0533	0543	20m / ✓	0h 51m E	2" "				5.5	K4							
678	ε ERI	03 31.8	-9 34		0633	0653	12m / 4m	3h 3m W	1.5 "				4.6	K2V							
	δ ERI	03 42.0	-10 02		0654	0710	5m 10m / 5m	3h 38m W	1.5				3.5	K0III							
	β ORI	05 13.2	-08 26		0715	0726	3m 10m / 4m	2h 24m W	1.5 "				0.1	B8Ia							
	ζ ORI	05 16.3	-01 55		0729	0736	3m 12m 25s / 12m	2h 3m W	2 "				3.5	O9.5III							
	ν ORI	05 30.7	-07 19		0740	0749	1m 3m 6m / 4m	2h 27m W	2" "				4.4	B0V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS.	REMARKS
679	α LEP	05 32.0	-17 46'	2 DEC	0801	0807	3m 40s 30	2h 45m W	2 / THIN	2.80	1" / 2	1/2 / 45	2.8	F0 IV	NeAr	40s	A-N2	II		5	
	ι¹ Lb CMa	06 52.1	-24 07	1977	0814	0837	7m 14m /	1h 55m W					4.5	K2.5 I							
	ε CMa	06 57.4	-28 55		0840	0844	2m 12m 25s / 15	1h 54m W					1.5	B2 II							
	ζ² CMa	07 01.9	-23 46		0848	0851	2m 40s 40	2h 6m W					3.1	B5 I							I + S + 1 - 15 T
680	K Phe	00h 24m 7	-43° 51'	5 DEC 1979	0033	0036	3m 2.5	0h 33m W	1.5 / PHOT	2 KO	2" / 1.2	0.2 / 45	4.16	A7 IV	H K	0.1	Na D	II	M 1.5		C + 4 m s
	α Phe	00 23.0	-42 22		0038	0048	10m 1m /	0h 38m W	1.5" / PHOT				3.97	K5 III							
	γ Phe	01 05.0	-46 48		0045	00 48	2m /	0h 0m W					4.18	G5 III							
	3 ERI	03 36.3	-40 17		0059	0107	10m /	1h 5m W					5.59	K2 III							
	η PHE	00 42.5	-57 38		0112	0123	15s 3m /	0h 8m W					4.4	A0							
	ζ PHE	01 07.5	-55 22		0126	0128	15s /	0h 43m W					3.8	B6							
	α ERI	01 36.9	-57 19		0130	0131	2s 5s /	0h 17m W					0.35	B5							
	X ERI	01 54.5	-51 46		0136	0140	8s /	0h 5m W					4.6	A5							
	4 ERI	02 15.5	-51 41		0147	0149	1m /	0h 5m E					5.4	B8							
	χ DOR	04 14.9	-51° 34'		0153	0157	4m /	1m 32m E	2" /				4.6	F5							
	θ ERI	02 15.8	-53 28		0201	0217	15m / +8	1h 42m E	2" /				4.9	K1							
681	ι ERI	02 37.2	-39 59		0230	0241	10m 8m /	0h 26m W	1" /				4.1	K0							
	p FOR	02 42.5	-32 34		0249	0258	8m 7m /	0h 3m W	1" /				5.4	G6							
	h ERI	03 41.3	-47 15		0300	0318	15m 13m /	0h 3m E	1" /				4.8	K2							
	g ERI	03 48.2	-36 18		0320	0335	5m 6m /	0h 2m E	1" /				5.1	G5							
	41 ERI	04 16.7	-33 54		0328	0329	1m 30 /	0h 25m E	/				3.4	B8							
	43 ERI	04 22.7	-34 07		0336	0351	18m +9 /	0h 15m E	1.5" /				5.5	M1							
	U² ERI	04 34.3	-30 41		0354	0403	9m 5m /	0h 9m E	1.5 /				4.8	K0							
	χ CAE	05 03.1	-35 33		0406	0422	10m /	0h 18m E	1.5 /				5.7	K3							
	ε COL	05 30.0	-35 31		0429	0439	10m /	0h 28m E	2.5 /				5.0	K1							
	ε ERI	03 31.5	-09 37		0445	0449	5m /	1h 26m W	1.5 /				4.6	K2 V							
	δ ERI	03 41.6	-09 55		0452	0459	3m /	1h 37m W	1.5" /				5.0	K0 III							
	β ORI	05 12.9	-08 18		0500	0501	6s 3s /	0h 9m W	2" /				0.1	B8 I							
	α COL	05 38.5	-34 07		0504	0506	1m 40s /	0h 16m E	2" /				2.5	B8 V							
	β COL	05 49.8	-35 49		0509	0518	8m 7m /	0h 11m E	2" /				4.3	K2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 17

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A. Rendant	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
682	γ Col	5h 56.5	-35° 17'	3 Dec	0533	0537	3m / 2m	0h 2m W.	2" / PHOT	2.86	50µ / 1.2	67 / 4.45	4.2	B3	NeA	60s	NONE	IIa-O	Mott	[illegible]	W=5-6 mph T=55° H=52
	λ Col	6h 15.4	-35 10	F74	0534	0550	10m / 8m	0h 4m E	2" / "				5.4	68					Surface Grit 1/2mm		
	5 CMA	6 19.2	-30 07		0553	0554	1m / 40s	0h 3m E	2" / "				2.9	B2.5							
	δ Col	06 20.9	-33 29		0555	0601	5m / ✓	0h 2m W	2" / "				4.7	G4							
	ΔCMA	06 27.1	-32 37		0603	0607	3m / 2m	0h 0m	1.5-2" / "				4.3	B5.							
	κ CMA	06 48.8	-32 32		0608	0610	2m / 1m	0h 18m E	2" / "				3.7	B2e							
	π Pup	07 15.9	-37 05		0613	0622	9m / V+4m	0h 32m E	1.5" / "				4.4	K5.							
	υ Pup	07 17.1	-36 42		0624	0628	4m / 2.5m	0h 28m E	1.5" / "				4.6	B3e							
	ζ Pup	07 36.1	-34 57		0631	0634	3m / 2m	0h 40m E	1.5" / "				4.4	B8							
	c Pup =HR3017	07 44.0	-37 55		0637	0650	12m / V+8	0h 32m E	1.5" / "				5.3	K5							W=10-15 mph
	b Pup =HR3084	07 51.4	-38 49		0652	0655	2m / ✓	0h 35m E	1.5" / "				4.3	B3							
	ξ Pup	08 02.6	-39 55		0658	0654	20s / ✓	0h 42m E	1.5-2" / "				2.0	O5f							
	l' Pup =HR3225	08 10.2	-39 33		0702	0724	22m / ✓	0h 25m E	1.5-2" / "				6.1	K5.							
	q Pup =HR3270	08 17.2	-36 37		0726	0729	3m / ✓	0h 24m E	1.5" / "				4.2	A7							
683	ι CMA	06 54.9	-17 02	"	0738	0746	1, 2, 4m / 2.5m	1h 13m W	1.5" / "	"	"	"	4.3	B3 II	"	"	"	"	"	"	
	δ CMA	07 00.3	-27 57		0749	0808	6, 13m / ✓	1h 30m W	2, 1.5, 2" / "				5.2	K7 II L							
	γ CMA	07 02.3	-15 37		0810	0821	1, 3, 5, 2m / 2.5m	1h 43m W	1.5" / "				4.0	B8 II							
	d CMA	07 07.1	-26 25		0824	0829	15, 30, 60s / 30s	1h 45m W	2" / "				2, 3	F8 I.							
	30 ζ CMA	07 17.3	-24 57		0833	0837	3m / 2m	1h 42m W	1.5" / "				4.2	C9 II.							
684	3 Tuc	00 19.0	-65 01	4 Dec 1924	00h31	00h40	5½m, 2m / 3m	0h 28m W	1-1.5" / "	2.86	52µ / 1.2	63 / 4.45	4.8	G2 V	N.A	60s	None	IIa-O	Mott Surface Grit 0.7mm 1.5m	vc-	T=55° H=52 W=20 mph
	β' Tuc	00 30.4	-63 07		0045	0047	2m / ✓	0h 23m W	1.5" / "				4.3	B8 V							Bottom of image cropped
	β² Tuc	00 30.4	-63 07		0047	0050	3m / ✓	0h 26m W	1.5" / "				4.7	A2 V							
	η² Hyi	01 54.4	-67 46		0053	0104	10m / 9m	0h 41E	2"-1.5" / "				5.6	G8 III							
	α Hyi	01 58.3	-61 43		0107	0109	40s / ✓	0h 43E	1.5" / "				3.1	F0 V							
	ε Hyi	02 21.7	-68 47		0110	0115	2m / 1.5m	1h 05E	1.5" / "				4.1	A2 V							
	ε Hyi	02 39.4	-68 22		0115	0117	2m / 1.5m	1h 15E	1.5" / "				4.0	B9 III							
	θ Oct	00 00.9	-77 15		0122	0139	17m / ✓	1h 44W	1.5" / "				6.0	K2 III							
	β Hyi	00 25.3	-77 27		0141	0143	48s / 15s	1h 24W	1.5" / "				3.4	G1 IV							
	ν Hyi	02 51.2	-75 12		0146	0207	20m / ✓	0h 37E	1.5" / "				6.1	gK4							
	α Eri	01 36.8	-57 24		0211	0212	5s / 1s	0h 41E	/				0.4	B5 IV							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 15

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
664 Cancel	L Eri	02 38.3	-40 00	2 Sept 1974	02 14	02 22	6m / 5m	0° 02E	1" / HAZE	2.6	50µ / 1.2	67 / 405	5.1	K0 III	Nea	60s	Wne	Tm-o	metal Sulfide	n-G	
	O Ret	03 44.0	-64 51		02 29	02 36	5m / 3m	1° 4m E	1.5"				5 C	K5 IV					24		
685	S Ret	03 58	-61 30	"	02 54	03 18	2m / ✓	0° 34m E	"		"	"	6.2	M2 III	"	"	"	"	15m	"	
	χ Ret	04 06	-62 15		03 00	03 45	5m / ✓	0° 9m E	1.5				6.1	M5							
	ζ Ret	04 14.2	-62 33		03 48	03 51	2m / ✓	0° 16m E	1.5-2"				4.2	G6							
	ζ Tuc	23 [illegible]	-64 31		03 53	03 57	2m / 4m	1° 32m E	1.5				4.2	F8 I							
	κ Hyi	23 48.2	-74 20		04 00	04 08	5m / ✓	0° 27m W	1.5				4.9	M2							
	ε Dor	05 45.6	-65 43		04 12	04 15	2m / ✓	1° 23m E	"				4.6	A6							
	-65 495	05 54.3	-65 06		04 18	04 31	12m / ✓	1° 16m E	"				5.7	A3							
	α Hor	04 12.8	-42 22		04 40	04 45	4m / 8m	0° 38m W	"				4.9	K1 III							
	ε Ret	04 15.9	-59 24		04 48	04 58	2m / 10m	0° 49m W	"				5.5	G5 I							
	48 Eri	04 22.2	-34 08		05 01	05 09	7m / 16m	0° 49m W	"				5.3	M1 III							
	α Dor	04 34.6	-55 01		05 15	05 16	45s / 1.5	0° 49m W	"				3.2	K0 III							
	α Col	05 39.5	-34 08		05 32	05 33	20s / 35	0° 2m W	1.5				2.5	B8 V							
	β Col	05 49.9	-35 46		05 36	05 38	2m / ✓	5m E	"				4	K2							
	γ Col	05 56	-36 20		05 40	05 42	3m / 1.5	7° E	"				4.1	B3							
686	β Pic	05 46.7	-51 07		05 52	05 52	2m / ✓	13m W	1.5				4 C	A3							
	δ Pic	05 49.8	-54 14		05 55	06 00	11m / ✓	23m W	1.5				5.6	K1							
	η Col	05 58.2	-42 49		06 08	06 14	6m / ✓	22m W	1.5				5.1	K0							
	ζ CMa	06 19.1	-30 07		06 17	06 18	18s / 25	6m W	"				2.9	A2							
	ν CMa	06 27.6	-32 38		06 21	06 22	1m / ✓	2m W	"				4.3	B5							
	κ CMa	06 48.7	-32 52		06 25	06 27	50s / ✓	15m E	"				3.7	B2 C							
	α Col	05 39.1	-34 44		06 29	06 30	1m / ✓	15m W	"				5.6	F8 I							
	N CMa	06 34.5	-33 00		06 32	06 35	2m / ✓	5m W	"				4.4	K9							
	ε Pup	06 49.2	-50 38		06 38	06 41	2m / ✓	0m	1.5"				4 L	K0							
	A CMa	06 49.3	-33 35		06 44	06 51	6m / ✓	5m W	1.5				5.3	B3							
	45' CMa	06 56.6	-28 23		06 58	06 59	2m / ✓	32m W	"				4 1	B0.5							
	5 5/6 CMa	06 53.8	-22 55		06 58	07 00	2m / ✓	33m W	"				4 7	A5							
	14 CMa	06 52.3	-23 08		07 03	07 06	2m / 20	42m W	"				4 6	A1							
	Ti CMa	06 54.2	-22 04		07 03.5	07 14	5m / ✓	27m W	.5				5.6	F2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 19

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
687	ν Pup	6 36.8	-43 07	4 DEC 1974	0726	0727	30s / ✓	1h 1m W	1.5 PHOT	2.86	50μ/1.2	-7°/445	3.1	B7	N.A.	0	NONE	IIa-O	M.T.	[illegible]	
	α Pic	6 48.5	-61 51	1974	0731	0732	1m .75m / ✓	0h 52m W	" / 4				3.3	A5					Surf. G.		
	χ² Vol	07 09.3	-70 23		0738	0743	5m / ✓	41m W	" / 4				4.8	G8					4.7+		
	ζ Vel	07 42.6	-72 28		0747	0753	6m / ✓	17m W	" / 4				4.0	K0					15m		
	α CHA	08 20.2	-76 48		0756	0759	2.5m / ✓	13m E	" / 4				4.5	F6							
	θ CHA	08 22.2	-77 23		0801	0813	12m / ✓	2m E	" / 4				5.5	K0							
	β Vol	08 25.7	-65 57		0815	0822	6m / ✓	2m W	" / 4				4.9	K2							
	ζ CAR	08 54.7	-60 29		0824	0825	1m / ✓	21m E	" / 4				3.7	B8							
	3 c CMA	07 17.6	-24 57		0830	0832	1m 20s / 1m 5s	1h 22m W	" / 4				4.2	O9 II							
	η CMA	07 22.9	-29 15		0836	0840	6m 15s / 3m 15s	1h 25m W	1 / 4				2.4	B5 I							T=52°F H=39%
688	β Hyi	00 24.2	-77°25'	5 DEC 1974	0031	0034	1½m / ✓	0h 20m W	1.5 PHOT	2.86	55μ/1.2	6°/4.0	2.8	G1 IV	N.A.	0	None	II	[illegible]		T52°F H=44% W=0
	HD 207076	21 43.4	-02 23		0041	0209	1h 28m / ✓	4h 28m W	1.5			(R=9)	7.2	M1							
	α ERI	01 36.6	-57 22		0214	0215	10s / 3s	0h 56m W	1.5				0.4	B5							
	ε ERI	02 39.0	-39 54		0219	0223	5m / ✓	3h 2m E	1½				3.7	K0							
	HD 10214	00 12.2	-7 58		0231	0240	21m 5m40s / ✓	2h 59m W	1"				6.7	M3 III							
228	HR 875	02 55.1	-3 50		0305	0310	8m 4m / ✓	0h 38m W	1				5.2	A1 V							
	κ CET	03 17.8	-3 18		0314	0318	7m / ✓	25m W	1.5				5.1	G5 III							
	β RET	03 44.2	-64 47		0335	0340	4s / ✓	7m W	1.5				5.0	K0							
	α HOR	04 13.2	-42 17		0344	0350	6m / ✓	11m E	1.5				4.7	K1							
	α DOR	04 33.6	-55 10		0353	0355	1.2 50s	2h 6m E	1.5				3.2	A0 p							
	β DOR	05 33.3	-62 31		0358	0403	4m / ✓	1h 19m E	1.5				4.2	F8 I							
	δ Vel	07 16.9	-67 54		0405	0410	4m 3s 6m / ✓	2h 53m E	1.5-2"				4.8	F8							
	α Pic	06 47.9	-61 55		0413	0415	1.2 / ✓	2h 20m E	1.5-2"				3.5	A5							
689	ε Vol	08h 07m.9	-68° 31'	"	0427	0430	2½m / ✓	3h 30m E	2"	"	"	"	4.2	B5 III	"	"	"	"	"	"	"
	χ Car	07 56.5	-52 58		0437	0439	80s 70s	3h 04m E	2"				3.3	B2 IV							
	ε Car	08 22.4	-59 27		0449	0450	100s / ✓	3h 18m E	2"5				3.1	K0+B							
	ε Vel	08 39.5	-52 54		0458	0500	90s / ✓	3h 28m E	2"				3.4	B3 III							
	d Car	08 40.2	-54 42		0511	0515	17s / ✓	3h 11m E	2"				4.2	B1 III							
	ε Vel	08 43.8	-54 40		0518	0519	30s 15s	3h 13m E	2"5				2.0	A0 I							
	f Car	08 45.9	-56 43		0521	0525	4m / ✓	3h 01m E	1.5-2"				4.4	B2 II neb							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
Contd 6889	I Pup (2=39)	07h11.9	-46°46'	5 Dec 1971	0530	0542	5m 4m	1h17mE	2" PHOT	2.86	50µ / 1.2	67 / 4.45	4.8	FOI	N.A						
	L² Pup	07 16.2	-44 36		0545	0601	16m 1m	57mE	1.5"				5.0v	M5e							
	σ Pup	07 28.3	-43 14		0603	0613	10m √HD	1h2mE	2"				4.8	K5							
	Q Pup (HR3485)	07 49.3	-47 02		1615	0626	1m √	1h9mE	1.5"				3.8	K0							
	P Pup (HR3561)	07 48.7	-46 20		0630	0631	80s 100s	1h4mE	1.5"				3.9	B0.5							
6910	α Pup (HR3845)	07 50.8	-46 31		0642	0648	5m /	51mE	2"				4.7	G5							
	J Pup (HR3894)	07 52.2	-48 04		0650	0653	2m5 2m	48mE	2"				4.1	B1							
	V Pup	07 57.3	-49 12		0655	0657	1.5m 2m	48mE	1.5"				3.9	B2							
	HD52266	06 58.5	-5 54.		0702	0723	21m 35m	37mW	1"				7.2	G0V							
	HD59612	07 28.3	-23 02		0726	0732	6m /	17mW	1.5"				5.1	A5 IV							
	HD62058	07 39.4	-31 41		0735	0803	28m 14m	35mW	1.8"				6.6	G0 I							
	γ² VEL	08 08.4	-47 18		0806	0807	10s /	12mW	1.5"				1.8	WC7							
	L² Pup (HR3845)	08 12.8	-40 17		0810	0820	10m /	19mW	1.5"				5.6	K0							
	ε VEL	08 36.4	-47 55		0822	0825	2m5 /	1mW	2"				4.2	A1							
	53 g. VEL	08 39.6	-46 35		0827	0830	5m 2.5	2mW	1.5"				4.6	F2 I							
	d VEL	08 43.2	-42 37		0832	0837	4m5 5m	6mW	1.5"				4.9	A5							
	α VEL (HR3734)	08 45.6	-45 59		0839	0841	1m.5 1m	9mW	1"				3.9	A0							
	91 g. VEL	08 58.8	-41 08		0843	0848	5m /	2hW	1"				5.1	F8							
6911	R AQR	23 42.7	-15 25	6 Dec 1971	0045	0245	2h /	3h19mW	1"		50µ / 1.2		8.5:	M2e							
	ε Eri	01 57.1	-57 25		0254	0256	4m /	1m26s	1"				10.4	B5							
	BD+15°605	04 14.1	+15 12		0254	0320	21m /	0h41mE	1"				6.7	F5 II							W=5 mph T=4° 11-4° C
	BD+18°624	04 18.8	+18 32		0325	0340	15m /	0h26mE	1"				6.5	F2 II							
	BD+14°702	04 26.9	+14 33		0343	0355	12m /	0h19mE	1"				6.2	F0 II							
	BD+14°682	04 19.2	+14 55		0400	0406	6m /	0h0m	1"				5.5	A5 II							
	+14°687	04 20.2	+14 13		0408	0433	25m /	20mW	1.3"				7.0	F4 II							
	+15°656	04 35.3	+15 41		0436	0506	30m /	0h44mW	1.5"				7.1	F5 II							
	+16°541	04 22.8	+16 52		0512	0551	3.5m /	1h52mW	1.5"				7.4	F6 II							
	L² Pup	07 12.6	-44 35		0559	0648	49m /	11hE	1.5"				7.5:	M5e							
	Ti Pup.	07 16.3	-37 04		0652	0655	3m /	7mE	1"				4.4	K5							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
691	ν Pup	07h 17.4	-36° 41'	6 DEC	0659	0702	2m / ✓	1m E	1.5" PHOT	2.86	56μ / 12	67 / 4.45	4.6	B5e	N.A	60s	None	IIa-C	Metol Sulfite 67°F 15 min	✓	54°F 41% 5 mph
(Cont.)	σ Pup	07 28.4	-43 14	1974	0704	0708	4m 6	7m E	" "				7.8	K5							
	c Pup = HR 3017	07 44.3	-37 54		0711	0717	6m 9	13m E	" "				5.3	K5							
					~~0721~~																
692	P Pup = HR 3055	07 48.5	-46° 18'	"	0724	0427	3m 2	9m E	" "				3.9	B0.5							
	V Pup HR 3121	07 57.6	-49 10		0729	0733	3m ✓	11m E	" "				3.9	B2n							
	b Pyx	08 39.0	-35 14		0735	0739	4½m ✓	46m E	1.5" "				4.9	G4							
	α Pyx	08 42.6	-33 08		0743	0744	1m ✓	44m E	" "				3.5	B2							
	w CMa	07 13.7	-26 46		0749	0750	1m 1.5	57m W	" "				3.7	B3e							
	108 g. Pup = HR 2906	07 32.8	-22 15		0752	0755	3m ✓	36m W	" "				5.0	F7							
	p Pup = HR 2922	07 34.2	-28 21		0758	0801	3m ✓	30m W	" "				4.5	B8							
	m Pup = HR 2944	07 37.0	-25 20		0803	0806	3m ✓	43m W	" "				4.6	B9							
	K Pup E	07 37.5	-26 47		0809	0812	3m 2m	48m W	" "				4.3	B8							
	" W	07 37.5	-26 47		0813	0817	3m ✓	52m W	" "				" ?	" ?							
	3 Pup	07 42.8	-28 57		0818	0820	2m ✓	52m W	" "				4.1	A3e							
	o Pup	07 46.8	-25 54		0822	0825	3m 1.5	52m W	" "				4.4	B0e							
	ξ Pup	07 48.0	-24 49		0828	0832	4m ✓	58m W	" "				4.6	G3							
	ll Pup	07 55.6	-22 48		0834	0840	5m ✓	58m W	" "				4.9	F8							53°F 72% 5 mph
		R.A. 1970	Dec 1970		END OF A GOOD RUN !								MV								wrong slit length
693	ε Lep	05h 04.2	-22° 25'	29 Jan 1975	0215	0218	75, 15, 30s / ✓	1h 02m W	2" curious	3.22	50μ / .5	112 / 7.0	3.2	K5	NeA	60s	None	IIa-O	metol sulfite 67°F 15 min	MtF	
~~693~~	ε Lep	05h 04m.2	-22° 25'		02 26	02 28	75 15s 30s / 60s	1h 13m W	2" curious	"	50μ / 1.2	"	"	"							
	β Eri	5 06.4	-05 07		02 33	02 35	5 10 22s / ✓	1h 17m W	" "				2.8	A3							
	μ Lep	5 11.6	-16 14		237	2 39	8s, 16, 32s / ✓	1h 15m W	" "				3.3	B9							
	β Ori A	5 13.1	-08 14		242	2 43	1, 2, 4s / ✓	1h 19m W	" "				0.1v	B8							
	η Ori AB	5 23.0	-02 25		2 48	2 49	7, 15, 30s / ✓	1h 15m W	" "				3.3v	B0.5							
694	γ Ori	5 23.5	+06 19		3 49	3 51	8, 16, 32s / ✓	2h 17m W	" "				1.6	B2							
	σ² CMa	7h 01.8	-23 47		3 56	3 59	11, 22, 44s / ✓	0h 46m W	" "				3.0	B3							
	δ CMa	7 07.2	-26 21		04 02	04 04	4s, 8, 16 / ✓	0h 47 W	" "				1.9	F8							
	η CMa	7 22.9	-29 14		04 10	4 12	8s, 16, 32 / ✓	0h 37 W	" "				2.5	B5							
	BC Mi	7 25.7	+08 21		4 17	4 19	10s, 20, 40 / ✓	0h 43 W					2.9	B7							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1970	DEC. 1870	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
694	α C Mi A	7h 37.7m	+05° 18'	29 JAN 1975	4:24	4:25	1,3,2,4	0h 36m W	2" cirrus	3.22	50μ / 1.2	112 / 20	0.4	F5	NeA	60s	None	IIaO	night sulfite 15m 67°F	McF	
695	β Gem	7 43.5	+28 06		4:58	4:53	45,8,28,16	1h 01 W	3"				1.2	K0							
	ε Hya ABC	8 45.2	+06 32		4:59	5:01	123,25,50	0h 05m W	3"				3.4	G0							
	ζ Hya	8 53.8	+06 04		5:04	5:06	12,25,50	0h 02 W	"				3.1	K0							
	α Hya	9 26.1	-08 32		5:12	5:13	9s,18,36	0h 23 E	2"				2.0	K4							
	ε Leo	9 44.1	+23 54		5:21	5:24	12,24,48s	0h 30 E	2"				3.0	G0							
	α Leo A	10 06.8	+12 07		5:29	5:30	2s,5,10	0h 47 E	"				1.4	B7							
696	ζ Leo	10 15.1	+23 34	"	5:44	5:47	20s,40,80	0h 38 E	" clear	"	"	"	3.5	F0	"	"	"	"	"	"	
	γ Leo AB	10 18.3	+20 00		5:53	5:56	10s,20,40	0h 23 E	"				2.0	K0							
	ν Hya	10 48.1	-16 02		6:00	6:04	20,40,80s	0h 59 E	"				3.1	K3							
	τ Pup	6 49.2	-50° 35'		6:17	6:21	25,50,100s	3h 21 W	"				3.0	K0							
	π Pup	7 16.1	-37° 03'		6:31	6:36	30s,1m,2m	3h 09 W	"				2.8	(gK4)							
	χ Car	7 56.0	-52° 54'		6:44	6:46	10s,20,40	2h 39 W	"				3.5	(B3)							
697	δ Leo	11h 12.5m	+20° 41'	"	7:22	7:23	7s,15,30	0h 00	"				2.6	A4							
	θ Leo	11 12.7	+15 36		7:29	7:32	20s,40,80	0h 10 W	"	"	"	"	3.3	A2	"	"	"	"	"	"	
	β Leo	11 47.5	+14 44		7:37	7:38	5s,10,20	0h 20 E	"				2.1	A3							
	ε Crv	12 08.6	-22 27		7:46	7:50	35s,70,140	0h 29 E	"				3.0	K3							
	γ Crv	12 14.3	-17 22		7:55	7:56	8s,16,32	0h 33 E	"				2.6	B8							
	δ Crv A	12 28.3	-16 21		8.02	8:05	12s,24,48	0h 39 E	"				3.0	B9.5							
698	ε Tau	4h 26.9m	+19° 07'	30 JAN 1975	0:49	0:56	55s,2m,2m	0h 21 W	3" clear	3.22	50μ / 1.2	112 / 20	3.5	K0	NeA	60s	None	IIaO	night sulfite 15m 67°F	McF	WF
	o² Tau	4 26.9	+15 48		1:02	1:07	45s,1m,2m	0h 33 W	3"				3.4	A7							
	α Tau A	4 34.2	+16 27		1:14	1:17	35s,1m,2m	0h 32 W	"				2.2v	K5							
	π³ Ori	4 48.2	+06 55		1:23	1:26	20,40,80	0h 29 W	"				3.2	F6							
	β Tau	5 24.4	+28 35		1:33	1:35	5s,10,20	0h 01 W	"				1.7	B=							
	ζ Tau	5 35.9	+21 08		1:43	1:46	15s,30,60	0h 01 W	"				3.1	B2							
														~~B2~~	~~B9.5~~						
699	δ Ori A	5 30.5	-00 19		2:00	2:02	5s,10,20	0h 23 W	"				2.2v	B9.5							
	~~Δ Ori AB~~	~~5 33.5~~	~~+09 55~~										~~3.4~~	~~B8~~							
	ε Ori	5 34.7	-01 13		2:13	2:15	3,6,12s	0h 31 W	"				1.7	B0							
	ζ Ori AB	5 39.2	-01 57		2:19	2:21	3,6,12s	0h 38 W	"				1.8	B9.5							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1970	DEC 1970	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP. KIND	COMP. EXP	CALIB	EMUL	DEV	OBS	REMARKS
699	η Gem A	6h 18m.1	+22°31'	30 Jan 1975	2:27	2:31	3m	0h08m W	3" Clear	3.22	50μ / 1.2m	112A / 7.0	3.3v	M3	NeA	60s	None	IIaO	metol Sulfite 67°F 15m	M.cF	
cont	μ Gem	6 21.1	+22 32		2:36	2:40	3m	0h10W	"				2.9v	M3							
	γ Gem	6 36.0	+16 26		2:46	2:48	5m	0h03W	"				1.9	A0							
	ε Gem	6 42.1	+25 10		2:53	2:56	2m	0h06W	"				3.0	G8							
700	ξ Gem	6 43.6	+12 56		3:17	3:21	25,50,1.0m	0h29W	2"				3.4	F5							
	α CMa A	6 43.8	-16 41		3:27	3:28	1,2,4s	0h35W	2"				-1.4	A1							
	ε CMa A	6 57.4	-28 56		3:34	3:35	2,3,6s	0h28W	"				1.5	B2							
	ξ Pup	7 48.0	-24 48		3:44	3:48	3s,1½,3m	0h08E	"				3.3	G3							
	ζ Pup	8 02.5	-39 55		3:54	3:56	4,7,14s	0h15E	"				2.2	O5f							
	π Pup	8 06.3	-24 13		4:02	4:04	11,20,44s	0h11E	"				2.8v	F6							
701	χ Vel	9 06.9	-43 19		5:03	5:09	2,4,7,8s	0h07E	2"				2.2	K5							
	2 Car	9 10.2	-58 50		5:16	5:19	22,1m,4m	0h00	"				3.4	B3							
	~~β Car~~	~~9 12.9~~	-		~~5:25~~	~~5:26~~															
	2 Car	9 16.3	-59 08		5:25	5:26	3,7,14s	0h01W	"				2.3	F0							
	κ Vel	9 21.2	-54 53		5:33	5:35	5,10,20s	0h04W	"				2.5	B2							
	N Vel	9 30.3	-56 54		5:42	5:49	5s,1m,1.5m	0h11W	"				3.2	(gK5)							
	β Car	9 12.9	-69 36		5:57	5:59	4,7,14s	0h38W	3"				1.7	A0							
702	~~ω Car~~	~~10 13.0~~	~~-69 53~~						2"				3.5	~~B3.5~~							
	δ Cen	12 06.8	-50 33		6:30	6:32	6,12,24s	1h43E	2"				2.6v	B2							
	δ Cru	12 15.5	-58 35		6:36	6:38	7,13,26s	1h45E	"				2.8v	B2							
	γ Cru	12 29.5	-56 57		6:48	6:51	12,24,42s	1h47E	3"				1.7	M3							
	κ Mus	12 35.4	-68 58		6:55	6:58	7s,4,28s	1h46E	"				2.7v	B3							
	β Mus AB	12 44.1	-67 57		7:02	7:06	10?,?,?m	1h48E	"				3.1	B3							
	β Cru	12 46.0	-59 32		7:11	7:13	2,4,8s	1h40E	2"				1.3	B0							
703	ε Cen	13 38.0	-53 19		7:57	8:01	13,30,60s	1h43E	3" Clear				2.3	B1							
	3 Cen AB	14 01.7	-60 13		8:06	8:08	4,8,16s	2h00E	3"				0.6	B1							
	α Cen A	14 37.6	-60 43		8:12	8:14	4,8,16s	2h30E	"				0.0	G2							
	α Cen B	"	"		8:15	8:17	6,10,20s	2h26E	"				1.4	(dK1)							
	α Lup	14 40.0	-47 16		8:22	8:24	6,10,20s	2h14E	2"				2.3	B1							
	η Cen	14 33.6	-42 01		8:26	8:28	6,10,20s	2h13E	2"				2.4v	B1.5							

NUMBER	OBJECT	R.A. 1970	DEC. 1970	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
704	α Dor	04h33.3	-55°06'	31 JAN	00:48	00:54	5,10,20,30	0h17W	3" cirrus	5.22	50μ 1.2mm	1128 / 20	3.3	~~G8~~ A0	NeA	60s	None	IIaO	MgF1 Sulfite 67°F 15min	McF	T 4 F 1+ 5 Tr W 6-7 mph
	α Ret A	4 14.0	-62 33	1975	01:02	01:11	5,10,20,30	0h53W	4" "				33	G6							
	α Car	6 23.3	-52 41		01:15	01:17	2,5,10	1h10E	" "				-0.7	F0							
	β Lep A	5 27.0	-20 47		01:27	01:33	20,30,40	0h01W	" "				2.8	G5							
	α Lep	5 31.4	-17 51		01:37	01:40	7,15,20	0h04W	" "				2.6	F0							
	α Col A	5 38.6	-34 05		01:45	01:50	10,20,30	0h07W	" "				2.6	B8							
705	β Col	5h49m.9	-35°47'		02:11	02:19	45,1m,2m	0h25W	3" "				3.1	(gK1)							
	ζ C Ma	6 19.2	-30 03		02:25	02:28	1,2,3,4m	0h05W	" "				3.0	B2.5							
	γ Pup	6 36.8	-43 10		02:34	02:40	1m,2m,3m	0h01E	" "				3.2	B7							
	β C Ma	6 21.4	-17 56		02:47	02:49	5,10,20s	0h24W	" "				2.0	B1							
	κ Ori	5 46.3	-09 41		02:56	02:57	5,10,20s	1h07W	" "				2.1	B0.5							
	α Ori	5 53.5	+07 24		03:08	03:12	1,2,3,4m	1h15W	" "				0.4v	M2							
706	α Pic	6h48m.1	-61°54'		04:00	04:05	10,20,30s	1h13W	2" clear				3.3	A5							
	ζ Pup A	7 28.3	-43 14		04:15	04:25	1,2,3m	0h52W	" "				3.3	(gK5)							
	γ Vel A	8 08.6	-47 16		04:28	4:31	45,1m,2m	0h18W	" "				1.9	WC7							
	ε Car	8 21.9	-59 24		04:37	04:40	1m,2m,3m	0h14W	" "				1.0	(K0+B)							
	δ Vel AB	8 43.9	-54 36		04:44	04:45	1,2,3m	0h02E	" "				2.0	A0							
	ω Car	10 13.0	-69 53		04:51	05:00	10,20,30s	1h19E	" "				3.3	B8.5							
707	q Car	10 16.1	-61 11		05:20	05:33	1,2,4m	0h47E	2" cirrus				3.4v	K5							
	p Car	10 31.0	-61 32		05:36	05:40	1m,2m,3m	0h54E	" "				3.3v	B5							
	θ Car	10 41.9	-64 14		05:42	05:48	1m,2m,3m	0h58E	" "				2.7	B3							
	μ Vel AB	10 45.5	-49 16		05:56	06:02	30,50,60s	0h47E	3" "				2.7	G5							
	λ Cen	11 34.4	-62 51		06:08	06:11	1m,2m,3m	1h28E	" "				3.2	B9							
	γ Cen AB	12 39.9	-48 48		06:18	06:23	8,15,20s	2h20E	2" "				2.2	A0							
708	β Crv	12h32m.9	-23°14'		06:57	07:02	25,30,40s	1h34E	3" "				2.7	G5							
	γ Vir AB	12 40.1	-01 17		07:10	07:13	24,44,88s	1h30E	" "				2.8	F0							
	ε Vir	13 00.7	+11 08		07:21	07:25	30,40,60s	1h38E	" "				2.9	G9							
	γ Hya	13 17.3	-23 01		07:36	07:40	32,34,45s	1h40E	" "				3.0	G8							
	α Vir	13 23.6	-11 00		07:45	07:46	2,5,10s	1h41E	" "				0.9v	B1							
	ζ Vir	13 33.2	-00 27		07:55	07:58	1m,2m,3m	1h38E	" "				3.4	A3							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1970	DEC. 1970	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
709	η Boo	$13^h 53^m.3$	$+18° 35'$	Jan 31 1975	08:24	08:30	[illegible]	$1^h 27^m E$	3" / cirrus	3.22	50μ 4.2mm	112 / 3.0	2.7	G0	NeA	60s	NeAr	IIaO	Model S 14" 15m 67%	McF	
	ι Cen	13 18.9	-36 33		08:36	08:39	[illegible]	$0^h 44 E$	"				2.8	A2							
	ν Cen	13 47.7	-41 32		08:44	08:47	[illegible]	$1^m 02 E$	2" "				3.4	B2							
	μ Cen	13 47.8	-42 20		08:51	08:5[illegible]	[illegible]	$0^h 56 E$	" "				3Iv	B2							
	ζ Cen	13 53.7	-47 09		08:58	09:00	[illegible]	$0^h 57 E$	" "				2.6	B2							
	θ Cen	14 01.9	-36 14		09:06	09:09	[illegible]	$0^h 59 E$	" "				2.0	K0							
		1975	1975																		
710	HDE 264862	$6^h 49^m.1$	$+6° 36'$	Feb.8 1975	00:54	03:06	132^m	$0^h 46^m W$	1½" / CLEAR	3.21	50μ / 1.6mm	112 Å/ 2.0	9.86	OB⁻	Neon	60s	—	IIa-O	Model Sight 15m	Thr	T: 56, H: 52%
	HDE 264111	6 46.6	+4 42		03:12	05:27	135^m	3 09 W	PHOTOMETRIC				9.74	OB							wind - 0.5 mph
	HD 48914	6 44.5	+2 32		05:38	05:56	18^m	3 41 W	1½" / "				7.17	BSIb?							
	HD 63423	7 46.6	-30 28		06:17	06:45	28^m	3 27 W	1½" / "				5.19	OB Iu?							
711	HDE 256575	6 22.8	+10 37	Feb.9 1975	00:30	04:31	241^m	$2^h 40^m W$	1½" photometric	"	"	"	10,34	B8Iab?	"	"	—	"	"	Thr	T: 55, H: 66%
	HD 46559	6 32.9	+2 25		04:34	05:34	60^m	3 35 W	"				8.76	B8 I?							wind - 0 mph
	HD 48914	6 44.5	+2 32		05:39	05:55	16^m	3 44 W	"				7.17	B5 Ib							
	HDE 258691	6 29.2	+4 43	Feb 10 1975	00:16	03:40	204^m	1 46 W	1½" photometric	"	"	"	10.28	OB	"	"	—	"	"	Thr	T: 54, H: 77%
	HDE 263690	6 45.0	+3 39		03:44	06:49	185^m	4 39 W	"				9.86	OB⁻							wind: 5-10 mph, C mph, Hazy
	HD 90772	10 26.4	-57 32		07:00	07:01	1^m	1 10 W	"				5.19	FOIa?							
	HD 90706	10 25.9	-57 30		07:14	07:27	13^m	1 36 W	"				7.53	B I							
712	HDE 254865	6 33.2	+4 44	Feb.11 1975	00:15	04:21	246^m	2 26 W	1½" / CLEAR	"	"	"	10,24	OB⁻	"	"	—	"	"	Thr	T: 55, H: 78% w. 5 mph wind, lightning in eastern horizon most of night
	HD 47359	6 37.1	+4 54		04:25	06:36	131^m	4 39 W	"				8.96	Be							
	HD 64571	7 52.4	-34 50		06:52	07:05	13^m	3 53 W	"				7.0	cFE							
	HD 90772	10 26.4	-57 32		07:16	07:17	$1\frac{1}{4}^m$	1 31 W	"				5.19	FOIa?							
	CPD-57°3239	10 25.9	-57 34		07:29	08:32	63^m	2 46 W	"				8.8	OB?							HD 90707
	HDE 260986	6 36.7	+9 54	Feb.12 1975	00:15	03:56	221^m	2 02 W	1½" CLEAR	"	"	"	10,10	OB⁻	"	"	—	"	"	Thr	T: 58, H: 52%
	HD 47032	6 35.5	+4 43		03:54	06:28	149^m	4 36 W	SOME HAZE 1½"-2"				9.28	B0 III?							WIND: 0-10 mph, C WESTERLY
713	HDE 261021	6 36.5	+3 39	Feb.13 1975	00:22	03.53	211^m	1 43 W	1½" PHOTOMETRIC	"	"	"	10.14	B2III?	"	"	—	"	"	Thr	T: 56, H: 63%
	HDE 259431	6 31.7	+10 21		03:56	06:20	144^m	4 36 W	"				9.02	B6pe							WIND: C mph
	HD 63423	7 46.6	-30 28		06:30	07:07	37^m	4 08 W	"				8.19	OB Iu							
	HDE 264815	6 49.1	+5 35	Feb.14 1975	00:11	03:47	216^m	1 49 W	1½"-2" CLEAR WITH HAZE	"	"	"	10.01	OB	"	"	—	"	"	Thr	T: 57, H: 63%
	HD 46559	6 32.9	+2 25		03:52	05:22	90^m	3 40 W	≥2" "				8.76	B8 I							wind - 5 mph

NUMBER	OBJECT	R.A. 1975	DEC. 1975	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
714	HDE 259440	$6^h\ 31.^m6$	$+5^\circ\ 49'$	FEB.15 1975	00:11	03:51	220^m	$2^h\ 14^m$ W	2" / 1½" AR	3.21	50μ / .6mm	1128Å / 7.0	9.72	B5pe	NeAr	60^s	—	IIa-O	metal sulfite 15^m	Tnr	T:56, H: 68% W: 0-5 mph
	HDE 258982	6 30.3	+6 12		03:55	06:34	159^m	$5^h\ 00^m$ W	1½" "				9.42	OB-							
	HD 46711	6 38.6	+2 47	FEB.16 1975	00:04	02:56	166^m	$1^h\ 15^m$ W	1½" / photometric	"	"	"	9.97	B3II	"	"	—	"	"	Tnr	T:57, H: 61% W: 5 mph B(2m sp: 4.3) clear/relaxed
	HDS 5184 A	6 31.7	+4 57		02:58	06:23	205^m	$4^h\ 50^m$ W	1½"-2"				9.75:	OBn							
	HD 90706	10 25.9	-57 30		06:34	06:49	15^m	$1^h\ 22^m$ W	1½"				7.54	B2.5Ib							
	HD 90207	10 25.9	-57 34		06:52	07:52	60^m	$2^h\ 25^m$ W	"				9.0:	B1III							
715	HDE 256351	6 22.6	+10 34	FEB 18 1975	00:06	05:36	336^m	$4^h\ 22^m$ W	1½"-2" / photometric	3.21	50μ / .6mm	1128Å / 7.0	10.27	OB	NeAr	60^s	—	IIa-O	metal sulfite 15^m	Tnr	T:57, H: 60% W: 0-5 mph
	HDE 256196	6 21.4	+9 11	FEB. 17 1975	00:03	03:50	227^m	2 40 W	2" / photometric	"	"	"	10.09	OB	"	"	—	"	"	Tnr	T:56, H: 67% W: 0-5 mph
	HD 45901	6 29.0	+2 52		03:53	06:21	148^m	$5^h\ 04^m$ W	"				5.8	B2Ve							
716	δ Sco	15 58.9	-22 33	"	08:04	08:06	$5^s, 7^s, 9^s$	$2^h\ 31^m$ E	"	"	"	"	2.21	B0.5IV	"	"	—	"	"	Tnr	"
	β¹ Sco	16 04.0	-19 44		08:11	08:14	$8^s, 10^s, 12^s$	2 39 E					2.55	B0.5V							
	ω¹ Sco	16 05.3	-20 36		08:19	08:27	$25^s, 35^s, 45^s$	2 27 E					3.91	B1V							
	σ Sco	16 19.1	-24 06		08:34	08:48	$105^s, 125^s, 155^s$	2 19 E					5.35	A5II							
	22 Sco	16 28.7	-25 04		08:52	08:58	$45^s, 60^s, 75^s$	2 19 E					4.65	B2V							
717	τ Sco	16 34.2	-28 10	"	09:10	09:14	$10^s, 14^s, 18^s$	2 08 E	"	"	"	"	3.08	B0V	"	"	—	"	"	Tnr	"
	δ Sgr	18 53.7	-26.2		09:19	09:21	$7^s, 9^s, 11^s$	4 21 E					1.90	B2.5V							
718	HDE 255736	6 20.7	+10 55	FEB.20 1975	00:01	03:49	228^m	2 43 E	1½"-2" / photometric	"	"	"	9.93	OB-	"	"	—	"	"	Tnr	T:55, H: 6?% W: 5 mph.
	HD 46386	6 32.0	+4 40		03:53	06:07	134^m	4 51 E	"				9.0	B0.5V?							
	HD 65232	7 55.4	-30 21		06:19	08:26	127^m	5 47 E	"				9.6	cF2?							
	HDE 256577	6 22.6	+8 19	FEB.21 1975	00:05	02:19	134^m	1 14 E	1½" / photometric	"	"	"	9.61	B2IV:(n)	"	"	—	"	"	Tnr	T:57, H: 57% W: 0-7 mph
	HD 46847	6 34.3	+2 44		02:34	05:48	194^m	4 33 W	"				9.63	B0III:p?							ID correct? YES, OK 2
719	HDE 261450	6 38.2	+8 23	FEB.22 1975	00:00	01:35	95^m	0 19 W	1½-2" / photometric	"	"	"	9.12	OB	"	"	—	"	"	Tnr	T: 56 H: 54% W: 0 mph
	HDE 261307	6 37.5	+5 06		01:38	04:38	180^m	3 27 W	1½"				9.70	B0.5II:?							
	HD 48914	6 44.5	+2 32		04:41	05:01	20^m	3 40 W	"				9.17	B5Ib?							
720	HDE 256574	6 35.3	+7 31	FEB.23 1975	00:00	03:02	182^m	1 53 W	1"-1½" / photometric	"	"	"	9.92	OB-	"	"	—	"	"	Tnr	T: 54, H: 72% W: 0-5 mph
	HDE 258785	6 30.2	+4 45		03:04	05:28	144^m	4 24 W	"				9.6	B9.5III?							
721	HDE 259631	6 32.4	+8 03	FEB.24 1975	00:00	02:02	122^m	1 00 W	1" / photometric	"	"	"	9.69	OB	"	"	—	"	"	Tnr	T: 54, H: 6?% W:0 mph
	HDE 259634	6 32.2	+5 19		02:03	05:34	216^m	4 37 W	"				10.00	B1III?							great seeing!
722	HDE 261307	6 37.5	+5 06	FEB.25 1975	00:00	02:15	135^m	1 12 W	1" / clear	"	"	"	9.70	B0.5I:?	"	"	—	"	"	Tnr	T: 54, H: 59% W: 5-10 mph.
	HDE 259631	6 32.4	+8 03		02:17	05:21	184^m	4 18 W	1"-2"				9.69	B nne(Tnr)							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 27

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA 1975	DEC. 1975	DATE U.T	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
723	δ Leo	11h12.8	+20°40'	March 16 1975		5:09	4,12,24,48s	0h42mW	1" / pt.cl.	2.86	1.2mm 50μ	62A / 4.32	2.68	A4 II	NeA	60s	—	IIaO	Mod Schlieb 1.5m	Me	
	θ Leo	11h13.0	+15 34			5:24	20,40,120s	0h57W		?			3.3	A2 V							
	β Leo	11.47.7	+14 43			5:33	8,16,32s	0 33W					2.2	A3 V							
724	γ Vir	12 40.6	−1 19	"		6:02	1m,2,4m	0 08W	2" / pt.cl.	2.86	"	"	4.0	F0 V	NeA	60s		IIaO	"	MR	
	δ Crv	12 28.5	−16 23			6:26	50,110,240s	0 44W					2.9	B9 V							
	HD142884	15 52.9	−23 26		7:35	8:09	30m	59mE					6.8	Ap				12 —	12 —		T5s H+K
725	β Lib	15 15.6	−09 18	"		8:23	8,20,40s			"	"	"	2.5	B8 V		"		"		MR	
	ρ Ser	15 45.0	+15 30			8:44	1,2,4m	13mE					3.7	A2 III							
	iota 6 Ser	15 40.4	+19 16		8:28	9:10	1m,2,4m	18mW					4.6	A1 V							
726	δ Her	17 14.0	+24 52		9:23	9:28	30,60,120s	59E					3.2	A7 V							
	χ Oph	17 46.7	+02 44		9:34	9:42	1,2,4m						3.8	A0 V							
	ι Lib	15 10.2	−9 43		9:49	9:57	1,2,4m						4.4	A							
727	β Tau	5 24.7	+28 35	March 17 75	0:00	0:05	12,24,48s		2" / clear	2.86	1.2mm 50μ	62A / 4.32	1.5	B7 III	NeA	60s	—	IIaO	Mod CaK	MR	
	θ² Tau	4 27.3	+15 49		0:17	0:27	1,2,4m						3.6	A7 III							
	134 Tau	5 48.1	+12 39			0:39	8+4,24.8m	2h00W					4.8	B9 IV							
728	β Eri	5 06.6	−5 07			1:14	24s,48,4m	3h01W	1½" / clear				2.9	A3 II						MR	
	τ Ori	5 16.4	−6 53				48,100s,2m						3.5	B5 II							
	β Ori	5 13.3	−8 19		21:35	1:38	3m						0.1	+B8 Ia							
	rCMa	7 02.7	−15 36		01:47		48,96s						4.0	B9 II							
729	3 Pup	7 42.8	−28 53		1:59	2:09	1m+	1h20W	1½" / "	"	"	"	4.1	A2 Iae						MR	
	HR3314	8 29.5	−05 50		2:15	2:23	36s,76,150	0h53W					3.9	A0 V							wind 10-20mph from East
	η Hya	8 41.9	+3 29		2:29	2:36	48s,96s,3m	0h48W					4.1	B3 V							
730	α Leo	10 07.1	+12 06		2:50	2:51	4s,8s,16s	0h22E	1½" / high scat cumulus	"	"	"	1.3	B7 V	"	60s — IIaO		"		MR	clouds in S & E
	κ Hya	9 39.1	−14 13		2:57	3:14	96s,3,6m	0h29W					4.9	B5 V		8@12s, 6@30s, 12@30s					
	HR4338	11 07.6 1970	−61 48 1970			3:46	3m,5,10m	0h27E					5.4	B9 Ia		3@60s, 5@60, 10@60s					
731	HD96224	11 03.7	−49 13			4:29	11m7	0h20W	"	"	"	"	6.4	A0	"	8@(12s+76s)		"		MR	
	HD105416	12 06.7	−48 31.4		5:32	5:38	5.9m	0h27W					8.6	A0		8@44s					
	HD115415	13 16.0	−47 26		6:48	7:25	30m	1h05W	2"				6.7	B9		8@(190s+12)					Clouds

Mar 18 Cloudy

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL (CORR.)	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
732	[illegible]	[illegible]	[illegible]	Mar 19	[illegible]	01 08	3m [illegible]		[illegible]	2.86	50μ/1.2mm	67A/4.32	3.18	[illegible]	NeA	60s	–	II.0	[illegible]	[illegible]	[illegible]
	[illegible]	07 23.1	−29 15	1975	01 20	01 23	8, 16, 32s						2.37	[illegible]							[illegible]
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
733	HD 66210	07 59.3	−48 53		02 23	02 37	10½m						[illegible]	[illegible]	[illegible]					[illegible]	[illegible]
	HD 81921	09 26.0	−48 33		[illegible]	[illegible]	[illegible]		[illegible]				[illegible]	[illegible]							[illegible]
	HD 89681	10 18.6	−47 49		[illegible]	[illegible]	19.5						[illegible]	[illegible]							[illegible]
	[illegible]	11 11.2	−48 56		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	[illegible]	11 11.9	−49 58		[illegible]	[illegible]	22m (40)						[illegible]	[illegible]							[illegible]
	HD 101410	11 38.4	−50 19		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	HD 108196	12 24.4	−49 25		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	HD 111519	12 48.6	−48 18		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]		[illegible]					[illegible]
734	HD 113314	13 01.7	−49 22		[illegible]	[illegible]	3m						[illegible]	[illegible]		[illegible]					[illegible]
	HD 116197	13 21.0	−47 47		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	HD 116836	13 25.3	−49 00		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	HD 117919	13 32.6	−48 08		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]							[illegible]
	HD 118456	13 36.2	−50 12		[illegible]	[illegible]	16m						[illegible]	[illegible]							[illegible]
	HD 119970	13 45.8	−49 59		[illegible]	[illegible]	18 (40)						[illegible]	[illegible]							[illegible]
	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~		[illegible]																
	HD 125823	14 21.5	−39 24		[illegible]	[illegible]	[illegible]						[illegible]	[illegible]	[illegible]						[illegible]
735	[illegible]	6 36.3	+16 25	Mar 20	−00 02	[illegible]	[illegible]		2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	5 48.1	+12 39	1975	00 17	00 26	2m/4m/8m						4.80	[illegible]							[illegible]
	13 Mon	6 31.5	+07 21		00 37	00 42	1m 2m 4m						4.50	[illegible]							[illegible]
736	[illegible]	6 [illegible]	[illegible]		[illegible] 15	01 30	10m		2-1½				[illegible]	[illegible]							[illegible]
	[illegible]	7 01.9	−49 53		01 47	02 13	26m		1½				[illegible]	[illegible]							[illegible]
	HD 53811	7 03.1	−49 32		02 17	02 [illegible]	5m		1½ - 2				[illegible]	[illegible]							[illegible]
	HD [illegible]	8 06.8	−48 55		02 31	02 53	21m		[illegible]				[illegible]	[illegible]							[illegible]
	HD 75129	8 45.3	−47 26		03 02	03 34	32m		1 - 1½				7.30	[illegible]							[illegible]
	HD 85037	9 46.7	−49 48		[illegible]	[illegible]	18m		1				[illegible]	[illegible]							[illegible]
	HD 104122	11 57.9	−48 58		04 10	[illegible]	32m		1				7.30	[illegible]							[illegible]

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 29
GARRISON CLASSIFICATION SPECTOGRAPH

T = 54° F H = [illegible]

NUMBER	OBJECT	R.A. 1970	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
736	HD 104664	12h 01.6m	-48° 01'	Mar 20	04 53	05 10	17m		1/Pleot	2.86	50μ/1.2mm	67A/4.32	6.[illegible]	A2	NeA	60s at 3		[illegible]	[illegible]	MR*	at 19 (63.[illegible]
737	HD 104666	12 01.6	-49 29	1975	05 51	06 24	32m						7.30	A0		at 3			[illegible]	[illegible]	[illegible]
	HD 10932[illegible]	12 33.5	-49 53	Cont.	06 31	06 54	23m						7.[illegible]	A2						[illegible]	at 7 5(3½m+10)
	HD 109675	12 35.1	-50 10		07 00	07 19	17m						[illegible]	A0						[illegible]	[illegible]
	HD 109787	12 36.1	-48 22		07 23	07 25	1½m						[illegible]	[illegible]						—	[illegible]
	HD 11030[illegible]	12 39.9	-[illegible]		07 29	07 29	≡5s						[illegible]	A0						—	[illegible]
	HD 111775	12 ~~48.6~~ 50.4	-47 56		07 36	07 49	13m						6.[illegible]	A0						[illegible]	[illegible]
	HD 117193	13 22.8	-47 44		07 58	08 20	22m						7.00	A0		[illegible]				[illegible]	[illegible]
738	α² Lib	14 49.5	-15 56		08 53	09 01	~~20s, 40s, 80s~~ 15s, 30s, 60s						[illegible]	A[illegible]		[illegible]					[illegible]
	HD 144661	16 06.4	-24 23		09 10	09 45	4½m, 9, 18.3m						6.27	A[illegible]							[illegible]
	ι Lib	15 10.8	-19 43		09 56	10 05	4m, 2m, 1m						4.[illegible]	A[illegible]		[illegible]					[illegible]
739	HD 56456	07 13.8	-48 13	Mar	23 47	23 51	3m		1/Pleot	2.86	50μ/1.2mm	67A/4.32	4.88	B8	NeA	60s at 3		[illegible]	[illegible]	[illegible]	[illegible]
	HD 48402	06 40.0	-47 35	21	23 59	00 15	14m						6.57	B8					[illegible]		[illegible]
	HD 61391	07 35.9	-48 45	1975	00 22	00 31	8m						5.[illegible]	B7						[illegible]	[illegible]
	HD 62756	07 42.3	-49 56		00 39	00 57	14m		1½				6.58	A0		T = [illegible]		[illegible]		[illegible]	[illegible]
	HD 63402	07 45.6	-49 10		01 03	01 31	26m						7.[illegible]	A2				[illegible]		[illegible]	[illegible]
	HD 63451	07 45.8	-48 02		01 35	02 02	26m		1				7.18	A2							[illegible]
	HD 67363	08 04.5	-48 43		[illegible]	[illegible]	26m		1				7.30	A0							[illegible]
	HD 72754	08 31.6	-49 30		02 37	03 0[illegible]	26m		1				7.30	[illegible]		[illegible]					[illegible]
740	O² Cen	11 30.6	-59 23		03 32	04 00	2½m, 5m, 10m		1				5.63	A3 [illegible]		[illegible]				[illegible]	[illegible]
	HR 4541	11 49.4	-62 31		04 09	04 39	3m, 10m, 14m						5.9[illegible]	[illegible]							[illegible]
	[illegible] 4578	11 57.6	-64 11		04 50	05 20	5m, 10m, 2.2m						5.[illegible]	[illegible]		[illegible]					[illegible]
741	HD 103077	11 [illegible]	-49 13		[illegible]	06 20	26m		1				7.[illegible]	[illegible]		[illegible]				[illegible]	[illegible]
	78 Vir	13 29	+4° 10'		06 35	06 56	1½m, 3m, 6m						4.[illegible]	A[illegible]							[illegible]
	HD 110304	12 39.[illegible]	-48 48		07 05	07 17	10s each						[illegible]	A0		[illegible]					[illegible]
	HD 115564	13 17.0	-49 43		07 23	07 58	32m						7.30	B7		[illegible]					[illegible]
	HD 161644	17 [illegible]	-[illegible]		[illegible]	[illegible]	23m						7.[illegible]	A3		[illegible]		[illegible]			[illegible]
742	HD 162434	17 50.2	-19 31		~~[illegible]~~ 09 08	09 33	23m		1½				6.[illegible]	[illegible]		[illegible]		[illegible]			[illegible]
	[illegible]	[illegible]	[illegible]		09 38	09 53	12		1½				[illegible]	[illegible]				[illegible]		[illegible]	[illegible]

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
T=55° H=60%
PAGE 30
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
743	HD 6[illegible]	08 [illegible]	-48 [illegible]	Mar 22	23:56	00:06	8m		1/plot	2.86	50μ 1.2mm	67A 432	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	HD 66255	07 59.5	-48 48	1975	00:18	00:29	10m				"		6.16	A0					68°F 15m	[illegible]	[illegible]
	HD 66[illegible]	07 58.9	-47 13		00:38	01:11	31m				"		7.30	B9					[illegible]	[illegible]	[illegible]
	HD 071695	08 25.7	-49 24		01:15	01:50	31m				"		7.30	A0						[illegible]	
	HD 73609	08 36.3	-49 19		01:56	02:20	20m				"		7.00	A0	([illegible])				[illegible]	[illegible]	[illegible]
	HD 76186	08 51.8	-47 18		02:27	02:50	24m				"		7.20	B7					[illegible]	[illegible]	[illegible]
	HD 79039	09 08.8	-47 21		03:03	03:22	19m				"		6.90	B8					[illegible]	[illegible]	[illegible]
	HD 79072	09 09.1	-49 10		03:28	03:53	24m				"		7.20	B8	[illegible]				[illegible]	[illegible]	[illegible]
744	HD 84552	09 43.5	-48 24		04:23	04:43	20m				"		6.88	B8		[illegible]			[illegible]	[illegible]	[illegible]
	HD 86087	09 53.7	-50 06		04:46	04:54	8m				"		[illegible]	A0					[illegible]	[illegible]	[illegible]
	HD 98022	11 14.5	-47 45		05:03	05:25	22m				"		6.88	A0					[illegible]	[illegible]	[illegible]
	HD 98359	11 16.9	-48 37		05:30	06:03	32m				"		7.30	B9					[illegible]	[illegible]	[illegible]
	HD 115415	13 16.0	-47 26		06:38	06:53	15m				"		6.70	B9					[illegible]	[illegible]	[illegible]
	HD 119970	13 45.8	-49 59		07:06	07:41	35m				"		[illegible]	A0	([illegible])			[illegible]	[illegible]	[illegible]	[illegible]
	HD 121057	13 [illegible]	-48 33		07:52	08:16	21m				0.2mm		7.40	A2						[illegible]	
	HD 161643	17 45.9	-18 06		08:36	09:11	32m				"		7.54	F0	([illegible])				[illegible]	[illegible]	[illegible]
745	O Sco	16 19.1 1975	-24 06		09:36	09:57	2m, 4m, 8m, 1/2m				1.2mm		5.25	+A5I		[illegible]				[illegible]	[illegible]
746	HD 50336	06 49.4	-48 51	Mar 23 1975	23:50	00:18	25m		1/plot	2.86	50μ 0.8mm	67A 432	7.50	A2	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	HD 52279	06 57.2	-49 07		00:23	00:49	25m				"		7.50	A0						[illegible]	
	HD 56907	07 15.6	-50 00		00:53	01:19	25m				"		7.54	A0	[illegible]	[illegible]		[illegible]		[illegible]	
	HD 65905	07 58.0	-47 36		01:23	01:59	29m				"		7.40	B8	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]
	HD 67041	08 03.1	-47 44		02:02	02:29	25m				"		7.40	B9						[illegible]	[illegible]
	HD 67704	08 06.2	-47 42		02:32	02:59	25m				"		7.40	B9		[illegible]				[illegible]	[illegible]
	HD 73609	08 36.3	-49 19		03:02	03:30	25m				"		7.00	A0	([illegible])					[illegible]	[illegible]
	HD 77566	09 00.5	-49 27		03:35	04:01	25m				"		7.40	B8		[illegible]				[illegible]	[illegible]
747	HD 86429	09 56.0	-49 44		04:16	04:42	25m				"		7.50	B8		[illegible]				[illegible]	[illegible]
	HD 97592	11 11.9	-49 58		05:03	05:30	25m				"		7.08	A2	([illegible])					[illegible]	[illegible]
	HD 102561	11 46.6	-49 49		05:34	06:02	25m				"		7.50	A2					"	[illegible]	[illegible]
	HD 113451	13 02.7	-47 59		06:07	06:33	25m				"		7.50	B9					[illegible]	[illegible]	[illegible]
	HD 122532	14 01.6	-41 16		06:46	07:03	15m		1 1/2		1.2mm		6.44	A0	[illegible]				[illegible]	[illegible]	[illegible]

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

T = 53°F H = 50%, wind in dome. GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV.	OBS.	REMARKS
747	ρ Oph D	16 24.1 (1975)	-23 23	Mar 23 1975	07 59	08:20	20m		1/plot	2.86	50μ / 1.2mm	67A / 4.32	7.06	B5 V	NeA	60s		IIa-O	~5 / 67°.5	~6100 at 15	
cont	HD142315	15 52.5	-22 43		08:28	08:49	20m						6.90	B8 V						" at 17	
	HD168459	18 18.2	-08 00	Mar 24 1975	09:04	09.26	20m		1				7.0:	F5	field flatten	Hα P.A. at 3	faint cuprous 250°	sep 1"		6177 at 17	
748	γ Lyn	6 36.3	+16 25		23:50	23:56	2m,1m		1/plot	2.86	50μ / 1.2mm	67A / 4.32	1.93	A0 IV	NeA	at 3		IIa-O	4-5 / 67° 15m	Mrk at 5,7 [2+4 in cent drifted]	
	13 Mon	6 31.5	+07 21	1975	00:10	00:18	8m						4.50	A0 Ib						6240 at 1,0? [3×2'+4+2×30	
	β Eri	5 06.6	-05 07		00:30	00:37	½,1,2m						2.93	A3 III						- at 16,18,20 [1,2,4dy]	
	η Hya	8 41.9 (1970)	+03 29		00:48	00:53	2m						4.10	B3 V		at 25				- at 23 [	
749	HD68765	8 10.7	-49 58		01:25	01:56	30m		1.5/1		50μ / 0.8mm	67A / 4.32	7.34	[illegible]		at 3		IIa-O			
	HD 71630	8 25.5	-48 00		01:59	02:29	30m				*		7.50	A0							
	HD 74496	8 41.5	-47 24		02:39	03:06	27m						7.40	A2							
	HD74531	8 41.7	-48 03		03:14	03:40	26m						7.50	F8?	field flatten						
	HD80859	9 19.5	-47 26		03:43	04:14	30m						7.52	[illegible]	[illegible]						
	HD90034	10 21.2	-47 50		04:49	05:18	30m						7.50	A0							
	HD102561	11 46.6	-49 49		05:24	05:58	34m						7.50	A2							
	HD94660	10 53.7	-42 05		06:06	06:18	12m						6.30	A0 (5:1)		at 21					

NUMBER	OBJECT	R.A. 1975	DEC. 1975	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. V	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
750	HR 1931	5h 37m.5	-2° 36'.5	March 27 1975	00:57	01:02	4½m	2h 54W	2" / photon	3.26	70 / 1.2mm	112R / 7.0	3.8	O9.5	~~NeA~~	~~3s~~		IIaD	Metol 15m 67°F	F&McF	5 w/5m neutral filter
"	HR 1855	5 30.7	-7 19.7			01:12	6s	3h 10W					4.6	B0.5				6 trails @ 1s w/set			4 52°F 60%
	1892	5 34.1	-4 51.1			01:20	6s	3h 12W					4.6	B1				6 trails @ 1s w/set			2 winds 25mph
751	HR 1931	5h 37.5	-2° 37'	"	01:34	01:34	3s		2" / photon	"	"	"	3.8	O9.5				IIaD	Metol 15m	"	~~0~~ 5 3 trls @ 1s
	1855	5 30.7	-7 20			01:36	6s	3h 33W					4.6	B0.5							~~2~~ 3 6 @ 1s
	1892	5 34.1	-4° 51'			01:39	6s	3h 32W					4.6	B1							~~4~~ 1 6 @ 1s
	3107	7 55.6	-40 40			01:48	50s	1h 20W					6.8	B2			1 @ 30s + 15 @ 1s				~~5~~ 1
	4638	12 10.3	-52 14			01:59	3s						4.0	B3	NeA	3s	3 @ 1s				3
752	HD 46223	6 31.0	+4 50	"	2:12 20	2:14	1m 50s	3h 10W	"	"	"	"	7.3	*O4				"	"	"	using guide
	HD 46150	6 30.6	+4 56		2:17 30	2:18	1m	3h 15W					6.7	*O5			using guide				
	HR 2456	6 39.6	+9 55			2:22	6s						4.7	*O7				set			
	3525	8 49.4	-42 00			2:46	24s	1h 23W					6.1	O9			1 trail guide				
	5664	15 15.0	-60 52			3:00	10s	4h 47.5	1½ / photon				5.1	O8.5	NeA	3s	set				
753	HR 2769	7 15.7	-38 16	"	3:10	3:11	12s		"	"	"	"	5.8	B4V				set			
	2981	7 40.4	-38 29			3:15	10s	3h 02W					5.5	B5				set			
	3101	7 54.9	-43 47		3:21	3:22	30s	2h 53W					6.0	B6				[illegible]			
	3784	9 29.3	-51 25			3:27	12s	1h 23W					5.4	B8				[illegible]			
	5625	15 07.0	-42 46			3:36	40s	4h 03E					5.8	B7							
	"	"	"			3:37	23s	4h 02E					"	"	–	–					
754	HR 2981	7 40.4	-38 29	"	3:51	3:52	15s	3h 38W	"	"	"	"	5.5	B5V	"		set.				
	4206	10 41.6	-79 40			3:59	24s						6.0	B5IV			set				
	3560	8 53.2	-60 15			4:05	18s	2h 40W					5.8	B5III			set				
	3825	9 33.8	-59 07			4:11	5s						4.0	B5II			set				
	3940	9 56.0	-54 28			4:15	3s						3.5	B5Ib			set				
	2827	7 23.1	-29 15		4:21 22		2m						2.4	B5Ia	–	–	5 trails @ 24s				
755	HR 3107	7 55.6	-40 40	"	~~[illegible]~~		50s	4 08W	"	"	"	"	6.8	B2V	"			"	"	"	
	3352	8 28.3	-47 51				10s	3 40W					5.3	B2IV							
	5488	14 43.4	-55 30				20s	2 18E					6.1	B2III							[illegible]
	5873	15 49.1	-54 59										5.7	B2II							
	6743	18 04.6	-50 06		5:16	5:21							3.7	B2Ib							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG V	SP	COMP KIND	COMP EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
755 cont	HR 4198	10h41.7	-59°06'	March 27	5:27	5:28			2" photom	3.26	70 / 1.2mm	112A / 2.0	5.4	B2.5Ia	—	—		IIaD	Mutol 15m 67°F	F+WLF	
756	[illegible]	7h42.9	-38 09	'75	5:43		1m	5h39mW	"	"	"	"	6.4	B7III				"	"	"	-1 *
	3691	9 14.7	-58 17			05:50	21s						6.0	B7IV							-3 *
	4197	10 32.0	-58 04		5:54	5:55	46s	2h50W					6.2	B7Ia							+3 *
	5358	14 18.5	-56 17			6:00	5s						4.3	B6Ib							+1 *
	5625	15 07.0	-42 46			6:07	25s						5.8	B7V	NeA	3s					-5 *
757	HR 3525	8 49A	-42 00	"	6:17	6:18	20s	4h57W	2-3" photom	"	"	"	6.1	O9V	NeA	3s		"	"	"	-5
	6672	17 53.4	-24 53			6:26	35s	4h00E					6.2	O8III							-3
	6823	18 13.8	-20 24				25s						6.0	O9II							-1 49°F 65%H
	6263	16 52.5	-41 48		6:41								6.5	O9Ib							+1
	6347	17 04.8	-35°25'			6:46				"	"	"	6.1	O9Ia				"	"	"	+3 *
758	HR 3527	8 49.8	-46 26	"	6:57	6:58	15s	5h37W	2-4"	"	"	"	5.1	BOIII	—	—		"	"	"	-1 *
	6165	16 34.3	-28 10		7:06m	7:08	1m40	1m58E					2.8	BOV							-5 w/ filter
	5953	15 58.8	-22 33		7:13m	7:15	1m40	1m16E					2.3	BO.5IV							-3
	6727	18 01.5	-22 43			7:23	40s	3m11E					6.7	BOII							+1
	6716	18 00.3	-22 47			7:27		3m05E					5.7	BOIb							+3
	6155	16 32.3	-43 60			7:35							4.9	BOIa							+5
759	HR 3708	9 17.9	-51 27		7:47	7:48	[illegible]	5h57W					5.9	B6Ia							+5
	5358	14 [illegible]	[illegible]				[illegible]	1m2W					4.3	B6Ib							+3
	6460	17 22.4	-44 08				41s	1:49E					5.1	B7III							+1
	6083	14 [illegible]	[illegible]			9 16	15s	0h35E					5.5	B6IV							-1
	5910	15 53.0	-27 16			8 21		0h05E	3"	"	"	"	6.1	B6V				"	"	"	-3
760	HR 5680	15 16.8	-60 25		8:34	8:35	145	0h45mW	3"	"	"	"	5.5	O7I				"	"		
	6164	16 34.6	-42 48			8:41	14s	0h25E					5.6	O9Ia							
	[illegible]	[illegible]	[illegible]			8:51	9s						6.4	BOIa							
	6219	16 45.2	-58 17				14s	0 25E					5.6	B0.5Ia							
	4860	12 47.1	-27 28				40s	3:38W					5.7	B1Ia							
	6142	16 30.0	-41 46			9:05	18s	0:04W					5.3	B1Ia+							
761	HR 4442	11 30.7	-59 23			9:16	18s	5:13W					5.7	A3Ia							
	HR 4876	12 49.8	-60 12			9:20	24s	3:58W					5.2	A2Iab							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1975	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
Nelson #5	79	4 23	-68 04.5	March 27		9:27	28^s	2:12W	2"5/ptm	3,26	70/1.2mm	112/7.0	6.8	A3IG				IIaD		F+HeF		
	6081	16 19	-24 08.8			9:31	14^s	0:00W	"	"	"	"	5.4	A5II				"		"		
	8728	22 56	-29 44.9			9:36	40^s	5:57E	"	"	"	"	1.3	A3V	NeA	3^s		"		"		-1
762	HR 1892	5 34.1	-04 51	MARCH 28		0:08	08^s	2:12W	2.0/ptm?	"	"	"	4.4	B1V				IIaD		F+HeF	Tarnish	-5
	3206	8 08.7	-47 16	"	00:15	00:17	180^s	0:17E					4.0	B1IV				"		"	5" screen	-3
	3347	8 40.1	-59 40			00:21	4^s	0:43E					4.2	B1.5III								-1
	3944	9 55.7	-71 16			00:25	64^s/24	1:55E					6.4	B1IG								+3
	4806	12 37.4	-67 04			00:33	34^s	4:30E					6.3	B1Ia								+5
	5873	15 49.1	-54 59			00:40	35^s	7:35E					5.8	B2II								+1
763	HR 4638	12 10.3	-52 14	"		00:58	120^s	3:33E	2.5/ptm?	"	"	"	3.8	B3V				IIaD		"	5" screen	-5
	3442	8 39.2	-52 58			01:05	10^s	0:00					5.1	B4IV								-3
	3663	9 10.7	-62 12		01:11	01:16	5^m	0:14E					3.8	B3III							5" screen	-1
	2653	7 01.9	-23 48		01 19	01:22	150^s	1 55W					3.0	B5Ia							5" screen	+1
	3494	8 45.7	-45 50			01:26	18^s	0 17W					5.7	B4Ia	NeA	3^s						+3.5
764	HR 2135	6 02.5	+20 08	"		01:40	80^s	3 14W					6.3	B2Ia				IIaD				-5
	2653	7 01.9	-23 48		01 45	01 47	140^s	2 23W					3.0	B5Ia							5" screen	-3
	3494	8 45.7	-45 50			01 50	19^s	0 40W					5.7	B4Ia								-1
	2827	7 23.1	-24 15			01 55	80^s	2 09W					2.3	B5Ia							5" screen	+1
	3456	8 41.2	-45 19			01 58	10^s	0:44W					5.0	B6Ia	NeA	3^s					TUBE OFF 1	+2.5
765	HR 1713	5 13.3	-08 14	"		02:17	12^s	4 40W					0.0	B8Ia				IIaD			5" screen	-1
	3708	9 17.9	-51 27			02:24	12^s	0:55W					5.4	B6Ia								-5
	4147	10 32.4	-58 04			02:26	44^s	0:32E					6.3	B7Ia								-3
	4250	10 51.3	-57 06			02 30	14^s	0:45E					5.4	B4Ia								+1
	4442	11 30.9	-59 23			02 36	18^s	1 18E					5.6	A5Ia	NeA	3^s						+3
766	HR 4198	10 41.7	-54 06			02:47	18^s	0:18E					5.7	B2.5Ia				IIaD				-5
	2653	7 01.9	-23 48		02:53	02 55	150^s	3:31W					3.0	B5Ia								-3
	3494	8 45.7	-45 50			03:01	18^s	1 52W					5.7	B4Ia								-1
	2827	7 23.1	-24 15			03:07	80^s	3 21W					2.3	B5Ia								+1
	3456	8 41.2	-45 19			3 11	10^s	2.07W					5.0	B6Ia								+3
															N2A	3^s						

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	1975 DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
767	HR 3494	8 45.7	-45 50	MARCH 28/29		03 13	18^s	1.15W	2-3/ zero cirrus	3.26	70/ 0.8mm	11.2/ 7.0	5.7	B4 Ia				IIaD		F+Pl.F	47°F	+5
	2653	7 01.9	-23 48		03 25	03 28	180^s	4 05W					3.0	B5 Ia							5" zero	+3
	3663	9 10.7	-62 13		03 37	03 42	5^m	2.04W					3.8	B5 III							5" zero	+1
	3442	8 39.2	-32 58			03 46	10^s	2.44W					5.0	B4 IV								-1
	4638	12 10.3	-32 14		03 51	04 03	120^s	0.41E					3.8	B5 V	Ne 7	3^s					5" zero	-3,5
768	HR 3940	9 56.0	-34 28	"	04 03	04 07	4½^m	1.48W	"	"	"	"	3.4	B5 IV-				IIaD		"	5" zero	-5
	5338	14 18.5	-56 17		04 12	04 12	6^s	2.30E					4.4	B6 IV-								-3
	3658	9 15.2	-44 48			04 16	34^s	2.27W					6.3	A1 IV-								-1
	5379	14 23.0	-68 05			04 20	24^s	2.27E					6.1	F3 IV-								+1
	6081	16 19.1	-24 07			04 26	14^s	4.15E					5.4	A5 II	N2 A	3^s						+3,5
769	HR 2752	7 17.7	-24 54	"		04 39	6^s	4.28W					4.2	C9 IV-				IIaD		"		-5
	3090	7 52.6	-48 03			04 41	4^s	4.16W					4.1	B8 III-								-1
	3944	9 55.7	-71 17			04 47	64^s/40	2.28W					6.3	B1 IV-								+1
	6716	18 00.3	-22 47			04 53	18^s	5.24E					5.7	B8 IV-								-2
	6743	18 04.6	-30 06		04 59	05 02	4½^m	5.35E					5.6	B2 IV-	Ne 7	"					5" zero	+3,5
770	HR 5953	15 58.8	-22 33		05.14	05 15	60^s	5.05E		20			2.2	B0.5 IV				IIaD		"	5^m "	-5
	3747	9 28.5	-33 22		05 22	05 25	3^m	2.50E		7/ 0.8mm			3.2	B2.5 IV							5^m "	-1
	3016	7 44.2	-37 50		5 32	05 33	50^s	5.46W					6.4	B3 IV								+1
	3266	8 08.7	-47 16			05 36	6^s	5.05W					4.0	B1 IV								-3
	3442	8 39.2	-32 58			05 41	14^s	4.40W					5.0	B4 IV	Ne 4	3^s				cloudy	70%	+3,5
771	HD 27371	4 18.4	+15 34	MARCH 29/30		00:00	8^s	3.44W	2"/ zero	3.26	70/ 0.8mm	4.7	K0 III				II-I		H+K	H+K-0.5/0	-3
	HD 29139	4 34.5	+16 27		00:03	00:04	90^s	3.11W					2.4	K5 III								+1
	62345	7 43.0	+24 27			00 07	6^s	0.68W					4.5	G8 III								-5
	69267	8 15.2	+09 16			00 11	9^s	0.21E					5.0	K4 III								-1
	60522	7 34.4	+26 57			00:15	15^s	0.24W					5.6	K0 III								+3
	86663	9 59.0	+08 09			00:19	40^s	1.7E					6.3	M2 III	Ne 4	3^s						+5
772	HD 46223	6 31.0	+04 50		00 46	00 50	90^s	CL 00W	2"/ zero				7.5	G4				IIaD		"		-5
	46150	6 30.6	+04 57			00 53	45^s	0.25W					6.8	G5								-3
	HR 2456	6 39.6	+09 54			00 36	5^s	0.20W					4.4	G7								-1
	1931	5 37.5	-02 36		01:00	01:04	3½^m	03:10W					3.5	G9.5 V							5" zero	+1

NUMBER	OBJECT	R A	DEC	1975 DATE U.T	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
Cont 772	HR 1855	5 30.7	−07 20	MARCH 24/25		01 08	5^{s}	3:20W	2"/pfm	3.26	70/0.8mm	112/70	4.3	B0 V						F, MLF	+3
	~~1872~~	~~5 34.1~~	~~−04 51~~				~~5^{s}~~						~~4.4~~	~~B1 V~~						PLATE HOLDER STUCK	~~+5~~
773	HR 2135	6 02.5	+20 08			1:32	36^{s}	3:12W					6.3	B2 Ia				II & D		F, MLF	−5
	2653	7 01.9	−23 48		01 35	01 37	140^{s}	2:19W	"				3.0	B3 Ia						5^{m} [illegible]	−3
	3494	8 45.7	−45 30			01 44	26^{s}	0:41W					5.7	B4 Ia							−1
	2827	7 23.1	−29 15		01:48	01 49	60^{s}	2 09W					2.3	B5 Ia						5^{m} [illegible]	+1
	3456	8 41.2	−45 19			01:53	9^{s}	0:55W					5.0	B6 Ia							+3
	1713	5 13.3	−08 14			01 57	12^{s}	4:27W					3.0	B8 Ia						[illegible]	+5
774	HR 1892	5 34.1	−04 51			02:08	6^{s}	4:18W					4.4	B1 V							−5
	3206	8 08.7	−47 16			02:12	12^{s}+4^{s}	1 45W					4.0	B1 IV							−3 −2
	3457	8 46.1	−59 40			02:15	5^{s}	1:19W					4.2	B1.5 III							−0
	~~5873~~	13 49.1	−54 59			02:22	18^{s}	5:45E					5.8	B2 II							+2
	3944	9 55.7	−71 17			02:27	60/30^{s}	0:15W	12"/pfm				6.3	B1 Ib							+4
	4806	12 37.4	−67 04			02:34	30^{s}	2:21E					6.3	B1 Ia							+6
775	HR 1213	5 13.3	−08 14			02 45	15^{s}	5:13W					3.0	B8 Ia						[illegible]	+1
	HD 87737	10 05.2	+16 53		02:50	02:53	3½^{m}	0:21W					3.5	B0 Ib						[illegible]	+3
	HR 4037	10 10.2	−69 54		02:57	03:00	3^{m}	0:21W					3.2	B8 III						[illegible]	−1
	3784	9 29.3	−61 25			03:04	10^{s}	1:18W					5.2	B8 V						[illegible]	−3
	4644	12 11.1	−62 49			03:08	45^{s}/30^{s}	1:20E					6.2	B9 Ia							+5
	6289	16 56.4	−50 36			03:12	18^{s}	4:00E					5.7	B9 IV							−3
776	HR ~~4206~~	12 41.6	−49 40			03 27	21^{s}	0:29W					5.9	B [illegible] IV							−5
	2468	7 39.1	−57 12			03:32	24^{s}	3:36W					6.0	B6 IV							−3
	3691	9 14.7	−58 17			03:37	21^{s}	2:05W					5.9	B7 IV							+1
	6083	16 20.6	−49 31			03:42	16^{s}	4:55E					5.5	B6 IV							−1
	6172	16 38.8	−48 15			03:46	20^{s}	5:10E					5.8	B7 IV							+3
	6289	16 56.4	−50 36			03:50	18^{s}	5:33E					5.7	B9 IV							+5
777	HR 3055	7 48.5	−46 18			04:27	4^{s}	4:23W					3.9	B0 III							+2
	3878	~~13 38.~~ 9 44.1	−30 06			04:40	30^{s}						6.3	B0.5 III n							+3
	3152	13 38.4	−53 20			04:44	30^{s}	1:20E					2.0	B1 III						5^{m} [illegible]	+1
	5488 ~~7883~~	~~14 43.7~~	−55 30				23^{s}						6.0	B2 III							+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1975 DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	HR 3560	8 53 2	-60 15	March 24/25		5:05	18^s		2"/ptm				5.7	B5 III						F+McF	
	3001	7 42.9	-38 09		~~5 15W~~	5 14	40^s	5.15W					6.#	B7 III							-0.5
778	HR 3708	9 17.9	-51 27			6.03	14^s	4:29W		3.26	70/0.8mm	112/70	5.4	B6 Ia				IIa D		"	+5
	3825	9 33.8	-59 07			6 07	4^s	4:16W					4.1	B5 II							+1
	5910	15 53.0	-27 16			6 12	27^s	1.57E					6.0	B6 V							-5
	6083	16 20.6	-49 31			6 16	15^s	2.21 E					5.5	B6 IV							-3
	6460	17 22.4	-44 08			6.19	10^s	3.19 E					5.1	B7 III							-1
	5358	14 18.5	-56 17			6 25	4^s	0.09W					4.4	B6 Ib							+3
779	HR 6823	18 13.8	-20 24			6 37	24^s	3.54E					6.0	C9 II				IIa D		"	-5
	6727	18 01.5	-22 43			6 41	40^s	3.37E					6.6	B0 II							-1
	3219	8 10.1	-37 13		6 47	6 48	1^m	6 22W					6.4	C9.5 II							-3
	3825	9 33.8	-59 08			6.52	5^s	5 01W					4.1	B5 II							+5
	5873	15 49.1	-54 59			6 57	20^s	1.08E					5.8	B2 II							+3
	6389	17 11.4	-32 24			7 01	24^s	2:26E					6.0	B1 II							+1
780	6219	16 45.2	-58 17			7.24	12^s	1:33 E					5.5	B0.5 Ia				IIa D		"	+3
	5661	15 14.6	-60 49			7 32	12^s	0.01W					5.6	B0.5 V							-5
	5953	15 58.8	-22 33			7.38	~~8~~ 8^s	0.58 E	2"/ptm				2.2	B0.5 IV						5" screen	-3
	~~3878~~	~~9 44.8~~	~~-30 06~~				~~6~~ 6^s						~~6.4 B0.5 III~~							REFUSE DISCARDED	
	6762	18 05.7	-21 27																		
781	~~HR 6245~~ ~~HR 6254~~	16 49.8	-41 12			8 04	15^s	1.02 E					5.5	O8 If p				IIa D		"	-5
	6272	16 53.2	-41 07				24^s						6.0	O8 I$^+$ fp							-3
	335-3646	16 32.0	-48 42				1^m	0.00E					7.0	O6 f							-1
	335-3650	16 32.2	-48 50.5		08 29	08 34	5^m	0.14E					8.8	B1 Ib							+1
	335-3645	16 31.8	-49 08		08 33	08 38	3^m	0.08E					8.3	A5 Ib-II							
	335-3658	16 32.8	-49 21		08 41	08 45	160^s	0.05E					7.7	A1 Ib-II							+5
782	HR 4540	12 51.3	-57 07			08 58	8^s	5 52W					4.2	F9 V							+3
	4706	12 21.5	-57 32		09.00	09.01	14^s	4 24W					5.3	B9 V							-5
	5413	14 28.7	-44 24			09.06	15^s	2:21W					5.4	A1 V							-1
	7001	18 36.1	+38 45			9 11	15^s	1 40E					0.03	A0 V							-3
	8728	22 56.2	-24 45				30^s						1.3	A3 V							+1

NUMBER	OBJECT	R A	DEC.	DATE U.T. 1973	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS	
783	HD 158561	17 32.8	+12 33	MARCH 29/30		39:32	80^s	0:16 E	2"/pfn	3.26	70/0.8	113/70	2.2	A5 III				I-a D		F+McF	5" screen	-5
	158758	17 39.0	17 38			09:36	12^s	2:18 E					8.3	G0 II								-3
	173764	18 45.9	-04 43			09:40	12^s	1:22 E					5.3	F5 II								-1
	135722	15 14.5	+33 14			09:43	6^s	2:14 W					4.5	G8 III								+1
	153210	16 56.5	+09 25			09:47	5^s	0:36 W					4.8	K2 III								+?
	186791	19 45.0	+10 33			09:50	3^s	2:10 E					4.0	K3 II								+.5
784	Bol-LS 46	6 23.2	+19 43	MARCH 29/30	00:36	01 11	$12/20^m$	2 30W	3"/pfn	"	70/0.6	113/70	10.2	CB				I-a D		F+McF	nearly EW with LS 47	-5
785	Bol-LS 44	"	"	MARCH 30/31	00:03	00:09	4^m	1 34W	2"/pfn	3.26	70/0.8	"	8.6	O7				II-a D		F+McF		-?
	-LS 47	"	"	"	00:21	00:51	30^m	2 14W			"	"	10.7	CB							nearly EW with LS 46	-5
	Dol 25-10	6 43.6	+00 20	"	00:56	01:17	20^m	2:21W			70/1.2		9.9	(F2 I)								-1
	-12	"	"	"	01:23	02:05	40^m	3:10W			70/0.8		11.2									+1
	vBH 60-1	9 15.0	-49 52	"	02:10	02:17	7^m	0:50W			70/1.2		8.8	B2 I ape	Ne A	3'						+3
786	ANON LS 1366 #2=LS 1366	9 52.4	-54 54	"	02:37	03:09	30^m	1:04W			70/0.6		11.1					I-a D				-?
	#1	"	"		03:13	03:44	30^m	1:40W			70/0.8		10.7									-3
	RCW 19 LS 1020	8 15.5	-35 40		03:53	04:01	8^m	3:33W			70/0.8		9.5	CB								-1
	1022	"	"		04:04	04:10	6^m	3:46W			"		8.9	C7 F								+1
	1019	"	"		04:15	04:40	25^m	4:12W			"		10.5	B8 Ia								+3
	1026	"	"		04:55	05:05	12^m	4:36W			"		9.6	CB								+?
787	NGC 4439-1	12 27.1	-59 55		05:22	05:52	30^m	1.13W			"		10.7	CB				I-a D				-5
	-2				05:57	06:17	20^m	1.38W			"		10.4	CB								-?
	-3				06:22	06:45	25^m	2 08W			"		10.6	CB								-4.1
	MW 335 SLS 3506	16 10.9	-51 37		07:03	07:41	35^m	0:41E			70/0.8		11.1	A2 II								+1
	3530	16 14.8	-51 53		07:31	08:22	30^m	0:03E			"		10.7	CB+								+3
	3529	16 14.7	-50 32		08:27	08:43	15^m	0 17W			"		10.1	B0 (I?)								+5
788	Pal 21-1	15 14.5	-59 33		08:56	09:38	40^m	2.12W			70/0.6		11.4	(e-G-K")								-5
	MW 335 SLS 3603	16 23.7	-49 26		07:41	08:02	20^m	1.27W			70/0.8		10.4	G5 +Gk								?
789	Bol 253 = SLS 53	06 23.2	+19 43	Apr 1	00:06	00:52	45^m	02:20W	2"/pfn	3.26	70/0.6	113/70	12.3	CB				II-a D-B*		F+McF		-5
	-51	"	"		01:26	02:06	40^m	0:55W					12.1	C Bcc							2 on 5 screen	-4
	Anon near Tr 9 #1	07 54.0	-25 17		02:18	03:41	80^m	0:40W					13.8									-2
	vBH 60-2	09 15.0	-49 52		03:52	04:27	35^m	0:46W					12.8	CB+								-1

B = Blotted B-N (HD 33)

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
Cont 789	ANON-SLS1366	C9 52.4	-54 54	Apr 1	04·35	04·50	15m	2:42 W	2-3/ptm	3.26	70/C.6	112/70	11.1					IIaD-B		I (M cF)	+1
	Mz-3 N blk	16 15.3	-51 55		05:15	06.30	75	1: 52E			70/C.6			Em Ne6-							I can't find it on sky, if it's marked +2
	Ts27-1	17 34.4	-33 28		06 48	07:25	35m	2:18E	2-3/Low Cirrus		70/C.6		12.0								+4
	-46	"	"		07.28	07.41	13/11m	2:00E			70/C 6		10 2	CB+r							+5
790	MW 335 LS 3617	16 26.8	-49 22		08:09	08;56	~~48m~~ 50m	0:26W	3/CIRRUS		70/C.6		11.7	C7.e				IIaD			terminated by thin cirrus -5
	LS 3620	16 27.2	-51 17		09:30	09.~~48~~	10m	1:06W	"		70/C.6		9 7	C8							-3
	NGC 6242-6	16 54.2	-39 26		09:46	09.53	7m	0:53W			70/C.8		9.1	K5							-1
~~791~~	~~MW 345A LS 614~~	07 39.2	-33 30	Apr 2	00:02	01.22	80m	1:44W	2" THIN CIRRUS		70/C.6		12.7	CB-				IIaD-B		F+M cF	Thin Cirrus all over F=56" M=43% ~~3~~
791	B02-2	06 47.6	+00 28	Apr 2	01 41	02:19	35m	3:28W	2" THIN CIRRUS		70/C.6		11.4								-5
	B07-LS1131	08 43.9	-45 53		02 34	03:04	30m	2:19W			"		11.3								-4
	-LS1135				03.13	03:25	12m	2: 40W			"		11 3 ~~11.4~~							originally thought D Moon rising	-2
	-LS1144				03:34	04 41	50m	3: 44W			"		11.9								-1
	-LS1132				04:37	04 49	12m	4 03W	CLEARING		"		10.4								+1
	-LS1148				04:55 22	04:56	8c s	4:10W			70/0.8		7.6								+2
	-LS1149				05:01	05:07	6m	4:20W			"		9.2								+4
	-LS1156				05;12	05:13	27s	4;23W			"		6.4								+5
792	NGC 5281-1	13 45.1	-62 46		05 49 17	05;50	48s		1.5/CLEAR		70/C.8		6 8	A2 III				IIaD			-5
	-2				05 56	06:02	6m	0 15W			"		8 4	B							-4
	-3					06.10	15Cs	0 23W			"		8.0	OB+Oe							-2
	-6				06 19	06:45	24m	0:58W			"		10 5								-1
	-8				06.52	07:07	15m	1.28W					10.8							could be missed as #9	+1
	-9				07 21	07:47	24m	2;00W			70/C.6		11 0							" " 10	+2
	-10				07 48	08:14	24m	2 29W			70/C.8		10 6								-4
	-11				08:16	08:20	14m				"		10 0							Too Close to rim	+5
793	GROUP -1	17 12.7	-39 44		08:47	08:55	6m	0.21E	1.0/CLEAR		70/1.2		8.7	C IIa				IIaD			-5
	-3982				08:59	09:38	35m	0 21W			70/0.8		11 0	wR							-3
	-3				09 42	10: 02	20/	00 :47W			"		~11		Nolr	3s		IIaD			-1
794	Bo1 - LS44	06 23.2	+19 43	Apr 3	00 06	00:11	5m	1 50W	2-3/CLEAR		70/C.8		8.6	C7				IIaD			-5
	-LS47				00:23	00:46	20m	2 25W	3-4/ "		70/C.6		10 6								-4
	B2-3	06 47.6	00 28		00:55	02 05	70m	3: 20W	4-5/ "		"		11.7								-2

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1975	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
Con 794	CR=MRK2414																				
	-LS 455	7 29.0	-15 45	Apr3	02:18	02:38	20m 18m	3:12W	2-3 / thin	3.26	70/0.8	112/70	10.3	K2 I				IIaD		F	-1
	-LS 456	7 29.0	-15 49		02:44	03:06	22m	3:40W	"	"	"		10.6	K0 I							+1
	-LS 463	7 29.4	-15 49		03:11	03:43	30m	4:17W			"		10.8	K0 I							+2
	-LS 424	7 26.8	-15 20		03:49	04:05	15m	4:40W			"		10.0	G8 I	Na A	3					+4
795	NGC-5281-11	14 25.6	-54 32		04:57	05 17	15m	1:06E			"		10.0								-5
	MW335-LS392	16 12.1	-50 07		05 50	06:30	40m	1:40E			"		11.3								-4
	LS3565	16 19.5	-49 59		06 44	08:42	120m	0:26W	2/3 CIRRUS IN NE				12.4								-1
	Tr27-23	17 34.4	-33 28		08:52	09:52	60m	0:22W					11.5		Na A	3					+1
796	NGC 5662-1	14 33.3	-56 26	Apr4	04:23	04:28	5m	1:58E	4"/pts?	3.26	70/0.8	112/70	8.4	B8				IIaD-B		F	Baked 2 day old -5
	-5				04:42	04:50	8m	1:36E		"	"		9.3	A0							-4
	-8				04:56	05:02	6m	1:24E					9.0	K2							-2
	-9				05:11	05 21	10m	1:05E					9.5	B8							-1
	-10				05:24	05:34	8m	0 54E					9.3	B9							+1
	-11				05:37	05 43	6m	0 43E	3"/				9.0	B8							+2
	-14				05:51	06:13	20m	0:13E	3"/		70/0.6		10.7								+4
	-30				06:18	06 42	22m	0:16W	"		70/0.8		10.3	K2							+5
797	MW335-LS360	16 23.4	-51 58		07:18	07:34	14m	0:41E	2-3"/clear		70/0.8		10.1	B0.5III				IIaD-B			-5
	-LS3553	16 17.6	-49 41		07 54	08:22	30m	0:07W	2½"/clear		70/0.6	112/70	11.0	O9 I							-4
	-LS3657	16 32.8	-49 31		08:31	09:45	15m	0:20W	2-3		70/0.8		9.9	O8 f, h							-2
	-LS3675	16 35.1	-4838		08:56	09:10	14m	0:42W	2-3		70/0.8		10.2	B1 II:							-1
	-LS3667	16 34.0	-48 41		09:14	10:04	50m	1:35W	3		70/0.6		11.5	F8 I+	Na A	3					+1
798	RCW20-LS 1040	8 18.1	-36 00	Apr5/6	23:40	23:58	15m	0:04E	R"/clear	3.26	70/0.6		10.6	O8				IIaD-B		F	comes in N -5
	B02-2	6 47.6	00 28	Apr6	00:07	00:42	35m	2:11W	2-4		70/0.6		11.4								-4
	S289-1	6 44.7	-07 18	"	01:08	02:46	90m	4:18W			70/(0.8)		12.4							F	-2
	B07-LS1148	8 43.9	-45 53			02:55	90s				70/0.8		7.6								-1
	ANON-LS1146-3	9 52.4	-54 54		03:09	05.31	140m 80m	3:54W	2"		70/0.6		v13 ? 12.5								FINDING CHART PROB WRONG +1
	NGC 5662-29	14 33.3	-56 26		05.41	05.49	8m	0:27E			70/0.8		9.6								+2
	-26				05:55	06:09	14m	0:06E			"		10.1								+4
	-4				06:12	06:26	14m	0.10W			"		10.0								+5
											"				Na A	3					+6

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1975	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS	
799	Tr27-43	17 34.4	-33 28	Apr 6	06:58	08:58	120m	0.18E	2-3/CLEAR	3.26	70/0.6	112/70	12.5	O8:				IIIaD-B		F	7:00 C rise	-5
	-46	"	"		09:01	09:33	30m	0:17W			70/0.8		10.7	O8+f								-3
	GROUP SLS 3982 LS 3987	17 12.7	-39 44		09:40	10:05	30m	1:10 W			70/0.6		11.2	O3+f								-1
	-1	"	"				3m				"		8.7	G Ia								+1
	-1	"	"			10:15	1m				"										B-V = 2.2 Blood Red Star!	+3
800	S306 - 2	7 29.5	-19 03	Apr 6	23:40	23:51	10m		2-3/nl CIRRUS	3.26	70/0.8	112/70	9.5	O8+				IIIaD-B		F		-5
	NGC 2414 GROUP -LS 402	7 25.0	-15 02	Apr 7	23:59	00:10	10m	1:02 W			"		9.6	O8								-4
801	S289 -1	6 44.7	-07 18	"	00.27	02:07	100m	3:41 W			100/0.8/0.6		12.4					IIaD-B			STAR GUIDED ALONG 3/4 of SLIT	-5
802	Ru44-94	7 58.1	-28 34		02:26	03:30	60m	3:51 W	3-6		100/0.6		11.8	07:e								-5
	NGC 5662-2	14 33.3	-56 26		03:54	04:36	40	1:40 E	~5		70/0.8		10.9									-3
	-4				04:40	05:00	18	1:16 E	~5				10.1									-2
803	MW 245 A -LS 681	7 39.2	-33 30	Apr 7	23:40	00 00	20m	0 47W	1-3/CLEAR	3.26	70/0.8		10.3	O8 ce				IIaD		F		-5
	-LS 644			Apr 8	00:22	02:00	98m	2:57W	1-2/CLEAR		70/0.6		12.4	O8								-4
	-LS 656				02:07	02:33	26m	3:20W	2/CLEAR		70/0.8		10.7	O8								-2
	Ru44-33	7 58.1	-28 34		02:39	03:53	70	4:21W	"		70/0.6		12.0	B0:								-1
	Bo7-1148	8 43.9	-45 53			04:09	100s	3:53W	2/"		70/0.8		7.6	O8+								+1
	-1145	"	"		04:14	04:56	40m	4:38W			70/0.6		11.3	WN8								+2
	MW 335 -LS 3598	16 22.9	-48 39		05:05	05:37	30m	2:19E	1-2		70/0.8		10.8	09I:								+4
	-LS 3599	16 22.9	-49 38		05:44	07:16	90m	0:40E	1-5		70/0.6		12.3	07								+5
804	Tr27-26	17 34.4	-33 28		07:42	09:10	80m	0:03W	2		70/0.6		12.3					IIaD-B			WIND RISING	-5
	-103	"	"		09:15	10:05	55m	0:58W	2		70/0.8		11.8	O8+	NeA	3s						-3
805	NGC 2414 Field -LS 537	7 32.9	-14 41	Apr 8	23:38	23:55	16	0:50W	2/ptm		70/0.8		10.3	O8				IIaD-B		F		-5
	S289-2	6 44.7	-07 18		NOT STARTED: TOO FT. TO GUIDE AS DEC 2"		120m				70/0.4		11.0	O8							double star separable on grid	-3
	Bo2-1	6 47.6	+00 18	Apr 9	00:10	00:56	46	23:6W	2		70/0.6		11.8									-4
	-2	"	"		00 59	01:37	34	3:16W	2½		70/0.6		11.4									-2
	MW 245A LS 647	07 39.2	-33 30		01:45	03:21	90	4:11W	2		70/0.6		12.4	O8-								-1
	Ru44-186	07 58.1	-28 34		03:28	04:10	40	4:41W	2		70/0.6		11.5	09 V								+1
	MW 335 -LS 3615	16 26.6	-49 18		04:24	06:26	120m	1:32E	2-3		70/0.6		12.7	07:f	NeA	3s						+2
806	-LS 3497	16 09.9	-51 24		07:06	08.46	90m	1:05W	2-3		70/0.6		12.5	O8+h				IIaD-B				-5
	Tr27-16	17 34.4	-33 28		08:53	10:07	70m	1:02W	1-4		70/0.8		11.9	O8	NeA	3s						-3

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS	
807	DM-34 3655	7 29.8	-34 53	Apr 9	23:50	23:58	8m	1:03W	2" CIRRUS		70/0.8		9.1					IIaD		F	Cleaning	-5
	DM-34 3660	7 29.8	-34 57	10	00 03	00 09	5m	1:15W	"		70/0.8		8.7								Pb b hdlg .85 at 58c 40"	-4
	Ru 44-128	7 58.1	-28 34		00:19	01:59	90m	2:36W	2" "		70/0.6		12.0	O9 V								-2
	Hef 19/18-5028	7 51.4	-26 14			02:08	2m	2:53W	"		70/0.8		7.6	B2 III								-1
	-5042				02:16	03.36	80/60m	4:21W	2-3" CIRRUS		70/0.6		11.8	B5: k							THIN CIRRUS PASSING	+1
	NGC 2669 -1	8 44.0	-52 53		04:01	04:15	14m	4:07W	"		70/0.8		9.7	K0								+2
	-2				04.19	04:21	2m	4:13W	"		70/0.8		7.8	B9								+4
	-3				04.26	04:29	3m	4:21W	"		70/0.8		7.9	A3								+5
808	Tr21-1	13 30.7	-62 40		04.57	05:04	7m	0:09W	"		70/0.8		9.0	B3				IIaD-B				-5
	-2				05:08	05:16	7m	0:21W	"		70/0.8		9.0	B3								-4
	-3				05:17	05:41	20m	0:46W	"		70/0.6		10.5									-2
	NGC 5662-29	14 32.3	-56 26		05:49	06:03	12m	0.08W	3" CIRRUS		70/0.8		9.6	B9								-1
	-26				06:05	06:21	14	0:25W	"		70/0.6		10.1	B9								+1
	-7				06:23	06:37	14m		"		70/0.6		10.1									+3
	HD 149038	16 32.4	-43 59			06:48	10+10s	1:07E	"		70/0.8		5.0	B0 Ia								+4,+5
809	Tr27-2	17 34.4	-33 28		07:18	08:50	90m	0:07E	2-3 CIRRUS		70/0.6		11.9	O8 Ie				IIaD-B				-5
	SLS 3982 -1	17 12.7	-39 44		08:54	09:02	10m	0:36W	"		70/0.8		8.7	G Ia							overexposed to give M3R	-3
	" -1				09:12	09:18	6m	0:43W	"		70/0.8		8.7	G Ia								-1
	-3				09:20	10:02	~40m	1:26W	"		70/0.6		~11.4									+1
810	RCW20-1040	8 18.1	-36 00	Apr 10	23:40	23:56	15m	0:15W	2-3		70/0.6		10.6	O8-				IIaD-B		F	Lipson N1 W Pb b hdlg 13" N 58c (40")	-5
	Del 25-17	06 43.6	+00 20	Apr 11	00:05	01.15	66	3:08W	1-4 SOME CIRRUS		70/0.6		12.0									-3
	S 301-6	07 08.8	-18 28		01:27	02:03	34m	3:8W			70/0.6		11.3	O8								-1
	MW 245A LS 648	07 39.2	-33 30		02:10	03:32	80m	4:31W	~3 "		70/0.6		12.2									+1
	Pis 20-1	15 13.3	-58 59		03:40	03:46	6m	2:49E			70/0.8		9.1	O8+ Ie								+3
811	Pis 21-11	15 14.8	-59 33		04:10	05:50	100m	0:47E	2-3		70/0.6		12.5									-5
	Tr27-46	17 34.4	-33 28		05:58	06:40	40m	2:16E	~2		70/0.8		10.7								deliberate over-exposure	-3
812	-104	"	"		06:56	07 40	40m	1:20E	~2		70/0.6		11.6	O8								-2
	-43				07:46	10:06	40/120m	1:13W	1-2		70/0.8		12.5	O8:	N+T	3s					almost on N1/K46	+1
813	MW 245A -LS 634	07 39.2	-33 30	Apr 12	00:04	01:45	100		2 THIN CIRRUS DOSY		70/0.6		12.4	O8-				HaD-B		F+Hu		-5
	NGC 2414 FIELD LS 453	07 28.9	-14 56		01:54	02:40	46/94	3:56W	3-4		70/0.6		11.1	O8+								-3

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
cont 813	NGC 2669			cont																		
	-4	8 44.1	-52 52	Apr 12	03:04	03.12	8m	2:13W	12" CLEAR		70/0.8		9.4	K0						F+Hu		-1
	-9				03:19	03:27	8	3:28W			70/0.8		9.4									+1
	-29				03:33	03:47	14m	3:48W			70/0.8		10.0	A0								+2
	-24				04:01 ~~03:56~~	04:09	8m	4:11W			70/0.8		9.4	A0							(FALSE START) GUIDED	+5 ~~+3~~
814	M73	16 15.3	-51 55		05:04 ~~04:57~~	06:44	104m/4h	0:44E			2500/4.0		NEBULA ~ →	Em				IIaD-B		stopped by sudden jump. NS slit	20.3 / 0" NS SLIT WIDENING	+2
	"				FORGOT TO TURN ON TUBE - STUPID 07:47	10:07	3h	2:32W			80/0.8		Nebula + Star	Em						widen with XY base		+2
815	Ru 44 - LS 909	02 58.1	-28 34	Apr 12/13	23:44	00:08	24m	0:58W	2-3 CIRRUS		70/0.3		10.4	O6 e				IIaD-B		F+Hu		-5
	-LS 902			Apr 13	00:15	00:45	30m	1:36W	1-2		70/0.6		10.9	O9 III								-3
	-LS 897				00:51	01:33	40m	2:25W			70/0.6		11.4	O9 V								-1
	-LS 898				01:38	03:00	80m	3:48W			70/0.8		11.8	O7 e								+1
	-LS 916				03:06	03:57	50/40m	4:49W	2-3		70/0.6		11.3	WN5+Oe							star trailed *	+3
816	MW 335 -LS 3547	16 17.0	-50 59		04:18	04.58	38m	2:29E	2-3		70/0.8		11.0	O8								-5
	-LS 3651	16 32.4	-49 44		05:04	05:07	3m	2:33E			70/0.8		8.3	A1 Ia								-3
	-LS 3653	16 32.5	-49 36		05:14	06:14	60m	1:28E	3-4		70/0.6		11.6	O8								-1
817	Tr 27-13	17 34.4	-33 28		06:39	09:39	180m	0:56W	1-5		70/0.6		12.9	OB	NeA	3S					WIND; exit #12 almost on	~~-2~~
818	Ru 44 - LS 891	07 58.1	-28 34	Apr 13/14	23:40	00:24	44	1:20W	3" / CIRRUS		70/0.6		11.2	B0				IIaD-B		F+Hu	Turn out	-5
	-LS 899			Apr 14	00:32	01:38	66	2:33W	2-3 / CIRRUS		70/0.6		11.6	O8								~~-3~~
	-LS 885				01:43	03:03	44	4:00W	3 / CIRRUS		70/0.6		11.2	B0 V								-1
	Tr 21 - ~~404~~ - ~~[illegible]~~	13 30.7	-62 40		03:27	04:18	50~~m~~	0:18E			70/0.6		11.3 ~~[illegible]~~	~~[illegible]~~								+1
	MW 335 -LS 3509	16 11.3	-51 18		04:26	06:50	130m	0:26E	3 / some cloud		70/0.6		12.4	OB+h								+3
819	MW 335 -LS 3648	16 32.2	-49 34		07:29	08:24	50m	0:47W	3		70/0.6		11 3	08								-5
	MW 335 -LS 3649	16 32.2	-48 54		08:40	10:02	90m	01:20W	2		70/0.6		12.0	08	NeA	3S						-3
820	Ru 44 -LS 899	07 58.1	-28 34	Apr 14/15	23:43	00:37	55m	01:30W	2		70/0.6		11.6	08				IIaD-B		Hud McF		-5
	Ru 44 -LS 891			Apr 15	00:41	01:16	35m	02:10W	2		70/0.6		11.2	B0:								-3
	Ru 44 -LS ~~891~~ 906				02:19 ~~[illegible]~~	04:19	120m ~~[illegible]~~	05:13W	2		70/0.6		12.5 ~~[illegible]~~	08 ~~[illegible]~~							wrong star -7	-1 +1 ~~+8~~
821	Cr 258-5	12 23.8	-60 22		05:06	05:32	25m	02:00W			70/0.8		10.5								had to realign coords	-5
	Cr 258-13				05:37	06:09	30m	02:37W			70/0.6		11.0								have to realign after almost each exposure - mirror moving?	-3
	MW 335 -LS 3554	16 17.9	-51 09		07:10	09:10	120m	01:45W	1-2		70/0.6		12.5	09								-1
	MW 335 -LS 3558	16 18.5	-51 09		09:13	10:03	~~50~~m	02:38W			70/0.6		11.6	B3 III	NeA	3S						+1

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
822	NGC 2414 -LS 415	07 25.9	-14 47	Apr15/16	23:32	02:03	150m	3 33W	1-2/clear		70/0.4		13.2	OB:				IIaD-B		Hut+McF	(tasked Apr14) -5
	NGC 4439 -12	12 27.3	-59 55	Apr16	02:15	03:16	60m	0 14E	2		70/0.6		11.8								-3
	NGC 4439 -8	"	"		03:17	04:17	60m	D 46W	2		70/0.6		11.8								-1
823	Tr 21 - 4	13 30.7	-62 40		04:32	05:12	40m	0 38W	2		70/0.6		11.3								(tasked Apr15) #12 on slit pos#4 -5
	NGC 6193 -4	16 39.5	-48 45		05:37	06:03	25m	1 41E	2-1		70/0.8		10.5								-3
	NGC 6193 -6	"	"		06:04	06:22	18m	1 21E	1-2		70/0.8		10.3	B2V							-1
	MW 335 -LS 3564	16 19.8	-49 28.8		06:33	07:26	50m	0 03W	2		70/0.6		11.7	O7:							+1
	MW 335 -LS 3564	16 19.3	-49 29.3		07:28	08:08	40m	0 46W	2		70/0.6		11.3	B2V							+3
824	MW 335 -LS 3559	16 18.7	-49 26.2		08:19	08:37	18m	1 15W	2		70/0.8		10.3	B2Ve							-5
	MW 335 ~~-LS 3559~~	~~16 18.7~~	~~-49 26.2~~				~~18m~~				~~70/0.6~~		~~11.6~~	~~B5Ve~~							+3
	MW 335 LS 3551	16 17.4	-51 47		08:42	09:37	55m	2 17W	2-1		70/0.6		11.9	OB+							-3
	MW 335 LS 3623	16 28.6	-50 35.5 ~~-49 55.1~~		09:47	10:10	25m	2 38W	1-2		70/0.8		10.7	F3II	NeA	3s					exposed accidentally for 1m on -3 -1
825	NGC 2414 -LS 460	07 29.1	-15 44	Apr16/17	23:30	00:00	30m	1 28W	2/clear		70/0.6		11.1	G5I				IIaD-B		Hut+McF	-5
	NGC 2414 -LS 480	07 30.1	-15 26	Apr17	00:08	01:14	66m	2 40W	1-2		70/0.6		12.1	OB+							-3
	NGC 2414 -LS 531	07 32.6	-15 46		01:20	01:55	35m	3 23W	1-2		70/0.6		11.5	OB							-1
	NGC 2414 -LS 464	07 29.5	-14 56		02:00	02:25	25m	3 55W	1-2		70/0.6		11.1	OB+e							+1
	NGC 2414 -LS 508	07 31.6	-15 16		02:29	03:09	40m	4 36W	1-2		70/0.6		11.4	OBe,fe,h							+3
826	NGC 6662 -6	14 33.3	-56 26		03:37	04:04	27m	1 30E	2		70/0.8		10.9	V							-5
	-12	"	"		04:08	04:43	35m	0 51E	2		70/0.6		11.4	V							-3
	-13	"	"		04:45	05:12	27m	0 24E	1-2		70/0.6		11.1	V							-1
	-15	"	"		05:15	05:47	32m	0 11W	1-2		70/0.6		11.3	V							+1
	-16	"	"		05:48	06:20	32m	0 44W	1-2		70/0.6		11.3	V							+3
	-21	"	"		06:25	06:52	27m	1 18W	1-2		70/0.8		10.9	V							+5
827	Tr -27 -43	17 34.4	-33 28		07:17	09:42	145m	1 06W	2-3		70/0.8		12.5	OB:	NeA	3s					guided N-S 5 trails -1 -5 (tasked Apr16)
828	Hoffmeister 18/19 -3091	07 51.4	-26 14	Apr17/18	23:20	00:10	50m	1 19W	1-2		70/0.6		11.5	O7:k				IIaD-B		Hut+McF	-5
	-4056	"	"	Apr18	00:12	00:52	40m	2 00W	1-2		70/0.8		10.9								-3
	-4051	"	"		00:54	01:29	35m	2 38W	1-2		70/0.6		11.1	BOVk							#4052 just below slit -1
	-5003	"	"		01:32	02:18	46m	3 26W	1-2		70/0.6		11.4	B5I ?							+1
	Bo7 -LS 1133	08 43.9	-45 53		02:31	02:38	6m	2 52W			70/0.8		8.9	BIIII							+3
	-LS 1151	"	"		02:44	02:44	1.5s	2 58W			70/0.8		5.4	B2III							+5

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
829	NGC 6204 ~~-7~~	16 44.7	-46 59	Apr18	03,05	03:21	35m		2-3				11.0					IIaD-B		Hu+McF	did Hogg 22-2 by mistake on -5
	-1	"	"		03:58	04:30	32m	3 14E	1-2		70/0.6		11.1	V				IIaD-B			(backed Apr 16) -3
	-3	"	"		04:32	04:47	15m	2 56E	1-2		70/0.8		9.9	III							fainter star close to slit -1
	-4	"	"		04:49	05:07	18m	2 36E	1-2		70/0.8		10.1	III							+1
	-5	"	"		05:08	05:33	25m	2 10E	1-2		70/0,8		10.6	III							+3
830	MW 335 -LS 3613	16 26.4	-49 35		06:07	07:57	110m	0 32W	1-2		70/0.6		12.7	OB				IIaD-B			(backed Apr 17) -5
	-LS 3582	16 21.1	-50 58		08:10	09:50	100m	2 32W			70/0.6		12.6	O7:r	NeA	3s					-3
831	NGC 2414 -LS 480	07 30.1	-15 26	Apr18/19	23:31	00:51	80m	2 23W	1-2		70/0.6		12.1	OB+				IIaD-B		Hu+McF	(backed Apr 18) -5
	-LS 478	07 30.0	-15 22	Apr19	00:55	02:00	65m	3 32W	1-2		70/0.6		11.9	OBT							fainter stars close to slit -3
	RCW 19 -1027	08 15.5	-35 57		02:05	02:45	40m	3 31W	1-2		70/0.6		11.4								-1
832	Pis 20 -7	15 13.3	-58 59		03:08	04:18	70m	1 53E	1-2		70/0.6		12.1	OB+							-5
	-11	"	"		04:23	06:04	100m	0 06E	1-2		70/0.6		12.6	WNh							-3
	MW 335 -LS 3548	16 17.1	-50 49		06:13	06:58	45m	0 16E	1-2		70/0.6		11.6	BO							-1
833	-LS 3608	16 24.2	-51 44		07:13	07:23	10m	0 01W	1-2		70/0.8		9.8	OBinn(BII)							-5
	-LS 3600	16 23.0	-51 34		07:34	08:04	30m	0 44W	1-2		70/0.6		11.3	B3V							-3
	-LS 3652	16 32.4	-49 06		08:09	09:05	56m	1 36W	1-2		70/0.6		11.9	B3V							-1
	-LS 3602	16 23.7	-50 57.3		09:08	09:40	32m	2 20W	1-2		70/0.6		11.3	B2V							+1
	-LS 3630	16 29.0	-51 37		09:47	09:50	2.75m	2 24W			70/0.8		8.4	A2I6							+3
	-LS 3651	16 32.4	-49 44		09:53	09:56	2.5m	2 27W			70/0.8		8.3	A1Ia							+5
834	NGC 2383 -7	07 23.9	-20 54	Apr19/20	23:33	00:24	50m	2 11W	1-2		70/0.6		11.6					IIaD-B		Hu+McF	-5
	-1	"	"	Apr20	00:25	00:38	13m	2 25W	1-2		70/0.8		9.9								-3
	-8	"	"		00:39	01:19	40m	3 07W	1-2		70/0.6		11.4								-1
	NGC 2669 -20	08 44.1	-52 53		01:36	02:06	30m	2 32W	1-2		70/0.8		10,8								+1
	-1	"	"		02:10	02:21	11m	2 47W			70/0.8		9.7	KO							+3
	-27	"	"		02:24	02:44	20m	3 14W			70/0.8		10.4								+5
835	Hogg 16 -4	13 27.9	-61 06		02:57	03:43	46m	0 34E	1-2		70/0.6		11.6								-5
	-6	"	"		03:46	04:36	50m	0 19W	1-2		70/0.6		11.7								-3
	NGC 5281 -4	13 45.1	-62 46		04:40	05:20	40m	0 46W	1-2		70/0.6		11.3								-1
	-1				05:24	05:25	48s	0 51W			70/0.8		6.8								+1
	MW 335 -LS 3585	16 21.3	-48 27		05:41	06:26	45m	0 43E	1-2		70/0.6		11.7	O9:re							+3

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS.	REMARKS	
836	MW 335 -LS 3597	16 22.6	-48 45	Apr20	06:41	06:55	14m	0 16E	1-2 clear		70/0.8		10.2	B0V				IIaD-B		Hu HMcF	five I.D. lines Hunter ??	-5
	-LS 3610	16 25.3	-49 54		07:00	07:12	12m	0 01E	1-2		70/0.8		10.0	OB							"	-3
	-LS 3677	16 35.1	-48 30		07:17	08:23	65m	1 01W	1-2		70/0.6		12.1	08:								-1
	-LS 3611	16 26.1	-49 29		08:28	09:38	70m	2 24W	1-2		70/0.6		12.2	OB-								+1
	-LS 3669	16 34.3	-49 14		09:43	10:00	17m	2 38W	1-2		70/0.8		10.4	B2IIe	NeA	3s						+3
837	NGC 6242 -1	16 54.2	-39 26	Apr23	05:40	05:45	5m	1 47E	1-2		70/0.8		8.8	B8				IIaD		Hu HMcF	H&K prominently first half.	-5
	-13	"	"		05:55	06:21	25m	1 11E	1-2		70/0.8		10.6									-3
	-2	"	"		06:23	06:30	6½m	1 02E	1		70/0.8		9.3									-1
	-3	"	"		06:33	06:48	15m	0 45E	1		70/0.8		10.1									+1
	-5	"	"		06:51	07:08	17m	0 25E	1		70/0.8		10.2									+3
	-20	"	"		07:10	07:45	35m	0 10W	1		70/0.6		11.3									+5
838	NGC 6249 -1	16 56.1	-44 44		07:59	08:14	14m	0 39W	1		70/0.8		10.0									-5
	-2	"	"		08:16	08:46	30m	1 11W	1		70/0.8		10.8									-3
	-4	"	"		08:48	09:28	40m	1 59W	1		70/0.6		11.4									-1
	-5	"	"		09:29	10:13	45m	2 37W	1		70/0.6		11.6		NeA	3s						+1
839	QU Car	11 05.0	-68 26	Apr25/26	23:52.5	00:12.5	20m	1 21E	2-3		100/0.4		~11.2		NeA	3s		IIaD	Metal	CS		+4
840	"	"	"	Apr26	00:34.5	01:01	27	0 35E			"											+4
	"				01 06	01:28	22	0 07E			"											+3
	"				01:31	01:53	22	0 17W														+2
	"				01:54.5	02:16.5	22	0 41W														+1
					02:19	02:43.5	22 off	1 08W														-1
					02:46.5	03:08.5	"	1 33W														-2
	"	11 04.6	-68 28		03:33.5	03:56	"	2 22W													change to E side	-4
841	"	"	"		04:32.5	04:55	23	3 21W														-4
	"	"	"		05:00.5 04:59.5	05:24.5	24	3 50W														-3
	"	"	"		05:27.5	05:50	23	4 15W														-2
					05:52.5	06:16	23	4 41W														-1
842	NGC 6242 -21 MW 335	16 54.2	-39 26		06:51	07:33	42m	0 10W	2-3		70/0.6		11.3					IIaD		Hu HMcF		-5
	-LS 3508	16 11.0	-50 58		07:40	08:16	33m	1 36W	2-3		70/0.8		10.7	B0V								-3
	-LS 3512	16 11.8	-51 01		08:19	09:09	50m	2 27W			70/0.6		11.5	OB								-1

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
cont 842	MW 335 -LS 3499	16 10.1	-50 13	Apr 26	09:12	09:50	38m	3 11W	2-3		70/0.8		10.9	O8⁻	NeA	3s		IIaD		Hut McF	Fullmoon +1
843	QU Car	11 05.0	-68 26	Apr 26-27	23 27	28 :43	15m	147E	2"	324	100/0.4		~11.2	Pec	"	"	✓	"	MWP2	CS	under exposed
844	"	"	"	"	00:13	00:35	22m	0h50mE	"										84		-4
845	"	"	"		00:51		———		Plate came off on the screen at end of exposure												
846	"	"	"	"	01:28	01:54	26m	0h23W							NeA	3s	✓	IIa-D	rotH sulphite	CS	+4
	"	"	"	"	01:56	02:25	29m														+3
					02:26	02:52	26m	1 22W													+3
	"	"	"		02:53	03:22	28m	1 52W													+2
	"	"			03:38	04:06	28m	2 36W													change to E side + rot. spect +1
	"	"	"	"	04:09	04:37	28	3 07W													-1
847	"	"	"	"	04:53	05:21	28	3 52W		324	100/0.4				NeA	3s		IIa-D		CS	+4
	"	"	"		05:22	05:50	28	4 21W											MWP-2		+3
					05:54	06:20	28	4 50W													+2
					06:23	06:51	28	5 22W													+1
	"				06:57	07:06	9	5 37W													Stationary E-W -1
848	MW 335 -LS 3567	16 19.8	-51 30	Apr 27	07:31	08:05	35m	1 20W	2"		70/0.6		11.2	09:				IIaD		HK	-5
	-LS 3560	16 18.7	-51 19		08:10	09:00	50m	2 16W			70/0.6		11.6	B5IIe							-3
	-LS 3641	16 31.3	-50 14		09:04	09:49	45m	2 53W			70/0.6		11.4	B2V							-1
	-LS 3559	16 18.7	-49 26		09:51	10:06	15m	3 23W			70/0.8		10.3	B2IIe	NeA	3s					+1
849	QU Car	11 05.0	-68°26	27-28	23:23.5	23:38.5	15m	1 43E			100/0.6		~11	Pec	NeA	3s	✓	IIa-D	MWP-2 7m	CS	New Batteries in I.T. +1
✓850	"	"	"	"	23:54.5	00:10.5	16m	1 15E			"		"	"	"	"	"	"	"		+4
					00:12.5	00:30.5	18m	0 52E			"		"								+3
					00:31.5	00:49.5	18m	0 37E			"							"			+2
					00:50.5	01:09.5	19m	0 17E			"										+1
					01:10.5	01:29.5	19	0 03W			"										-1
					01:30.5	01:51	20	0 25W													-2
					01:52	02:10.5	18.5	0 44W													-3
✓851	QU Car	"	"	"	02:27	02:46.5	19.5	1 20W			"			"	"	"	"	"	"	"	+4
					02:49	03:07	18	1 41W													+3
					3:22	03:44.5	20.5	2 20W													reversed to E side +2

NUMBER	OBJECT	R.A. 1975	DEC. 1975	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
cont 851	QU Car	11h05.0	-68°26'	Apr 27-28	03:45	04:06	21m		2"	324	100μ/.4	112A	~11	pec	NeA	3s	✓	IIa-D	HWP-2 7min	Cs	+1
					04:07	04:28	21m	1 45 W	3"-4"												-1
					04:29	04:525	23.5	Sidereal clock stopped													-2
					04:53	05:19	26m														-3
					05:20	05:44.5	24.5m														-4
852	"	"	"	"	06:025	06:30	27.5m	~5 02W			"	"	"	"	"	"	"	"	"	"	+4
					06:31	06:59	28m	~5 32W													+3
853	MW 335 -LS 3640	16 31.1	-49 30	Apr 28	08:01	08:34	33m	1 40W	3"		70/0.8		10.7	B1 III				IIa D		Hu	-4
	-LS 3635	16 30.1	-48 56		08:37	09:15	38m	2 22W			70/0.8		10.9	B3 V							-2
	-LS 3633	16 29.9	-47 45		09:19	09:52	33m	2 59W	2-3		70/0.6		11.0	B0 II							+1
	-LS 3675	16 35.1	-48 38		09:54	10:14	20m	3 16W	2-3		70/0.8		10.2	B1 II:	NeA	3s					+3
854	QU Car	11 05.0	-68°26'	28/29	23:17	23:37	20m	1 45E	2"		100/0.4		~11	pec	NeA	3s	✓	IIa-J	HWP-2 7m	Cs	scattered +4
	"				23:38	00:00	20m	1 20E			"										high +3
	"				00:01	00:20.5	19.5m	1 0 1E			"										cirrus +2
	"				00:21	00:41	20m	0h40mE			"										+1
	"				00:42	01:02	20m	0h19mE													increasing -1
	"				01.03	01:25	22m	0h04W													cirrus -2
	"				01:26	01:52	26m	0h30W													-3
855	"				02:06	02:36	29m	1h14W													+4
	"				02:37	03:07	30m	1h45W													+3
	"				03:27	05:57	30m	2h36W													reverse to East side +2
	"				03:58	04:29	31m	3h08W													+1
	"				04:30	04:58	28m	3 36W													-1
	"				04:59	05:30	31m	4 09W													through Thick -2
	"				05:31	06:04	33m	4 43W													Cirrus -3
856	QU Car	11h05.0	-68°26'	29/30	23:08	23:35	27m	1 43E	4"	324	100/.4	"	~11	pec	NeA	3s	✓	IIa-D	MWP-2 7m	Cs	cloud in +4
					23:36	00:00	24m	1 18E	2"								common slot and plate of night				west +3
					00:14	00139	25	0 39E	2"-4"												+2
					00:40	01:19	39	0 01W	4"-6"												through Cirrus +1
					01:20	02:00	40	0 41W	6'-10'												clouds -1

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	[illegible]	[illegible]	[illegible]	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
857	QU Cur	11 05.0	-68°26'	Apr 30 / May 1	23:21	23:36	power failur				100μ/.4	112A	~11	Pec	NeA	3s	✓	IIa-)	MWP-2 7m	CS	power fails lost time +4 s coordinates! +31
					23:50	00:58															
		(1975)																			
[illegible]	τ Sco	16 34.3	-28 10	[illegible]			3/6/12s		2-3"	370	100μ/.8	112A	2.9 V	Bo V	NeA	3		IIa-)	7m	Cb, GV, MF	FORECT SET FOCUS
	β Com	13 10.7	+28 00				15/30s/1m						4.3	Go V							
	β Vir	11 49.4	+1 54				8/16/32s			340			3.8	Fg V		30s					v.w.
	τ Sco	16 34.3	-28 10				3/6/12s						2.9	Bo V							✓ DECKER WRONG
	σ Sgr	18 53.7	-26 20				2/4/8s						2.1	B2.5 V		30s					✓
859	IC 4756 #2	18 34.0	+4 56		2:39	2:49	4m						6.53 B			30s		IIa-O	MWP-2 7m		✓
	3	18 36.3	+5 53		2:57	3:07	4m 12s						6.59								✓
	1	18 38.2	+5 16		3:13	3:28	~~6m 54s~~ 11.7m						7.15								✓
	4	18 37.0	+4 52		3:39	3:54	11m 54s						7.80								s/w.
	5	18 34.9	+4 57		4:01	4:17	12m						7.81								w.
	6	18 35.0	+5 17		4:28	4:54	20m						7.86			30s					some haze w.
860	6	18 35.0	+5 17		7:27	7:56	~~16m~~ 24m		2-3"				7.86			30s		IIa-O	MWP-2 7m		✓
	5	18 34.9	+4 57		8:08	8:41	26.7m	4:00W					7.81			30s					✓
		(1975)											(B)								
861	5 Lec	10 15.3	+23 33	JULY 31A 1975			14/28/56s	2:39W	2-3"	340	100μ/.8	112A	3.74	Fo III	NeA	30s		IIa-O		Cb, GV, MF	
	ε Vir	13 0.9	+11 06			23:02	10/20/40s	0:02W					3.8	G8 IIIab							
	ω Sco	16 5.3	-20 36		23:15	23:19	8/16/32s	2.45E					3.91	B1 V							
	δ Oph	16 13.0	-3 37		23:24	23:29	16/32/64s	2:48E					4.30	Mo5 III		30s					
862	NGC 6281 94	17 02.8	-37 56		23:55	0:23	25m	2.38E					8.6?			30s					
	IC 4756 2	18 34.0	+4 56		00:35	00:56	13.6	3:42E	3"				6.53								
	15	18 37.5	+5 34		00:59	02:10	60m	2:26E					9.04								
	11	18 34.4	+5 32		02:19	04:10	~~80m~~ 110m	0.22E					9.72								
	33	18 34.1	+5 15		04.14	05:54	100m	1.23W					9.81								
	35	18 37.3	+5 25		05:57	08:37	160m						9.87			30s					a little cloud

BAD DEVELOPER - PLATES DISCARDED

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
863	α Aqr	22 4.5	-0 26	JULY 3/4 75	09:30	09:34	12/24/48 s ~~8/16/32~~	1:33W	3"	340	100μ/.8	112A	B 3.91	G2Ib	NeA	30s		IIaO	BAD	DEVELOPER —	
	α PsA	22 56.2	-29 45		09:42	09:45	2/4/8 s	0.52W					1.25	A3V						PLATE	DISCARDED
	ψ Peg	23 56.5	+25 00		09:52	10:04	5.5 m	0:11W					6.25	M3III							
	γ Peg	0 12.0	+15 03		10:10	10:12	6/12/24 s	0:04W					2.60	B2IV							
	χ Peg	0 13.3	+20 04		10:18	10:31	6 m	0:12W					6.38	M2+III		30s					CLOUD
864	ω Sco	16 5.3	-20 30	JULY 4/5 75		00:51	25/50/100 s	1:08E	6"	340	100μ/.8	112A	3.91	B1V	NeA	30s		IIaO	MWP-2 7min	Cb, Cve	✓
	δ Oph	16 13.0	-3 37		00:57	01:06	30/60/120 s	1.00E	5-10"				4.30	M0.5III							✓
	22 Sco	16 28.7	-25 04		01:13	01:26	45/90/180 s	0:57E					4.65	B2V							✓
	τ Sco	16 34.3	-28 10		01:31	01:36	15/30/60 s	0:52E					3.08	B2V							✓
	ν Oph	17 57.6	-9 47		01:42	01:51	30/60/120 s	2:00E					4.34	K0III		30s					✓
865	η Ser	18 20.0	-2 53		02:49	03:06	30/60/120 s	1:08E					4.20	K0III-IV		30s					✓
	α Lyr	18 36.1	+38 46		03:11	03:15	4/8/16 s	1.15E					0.04	A0V							✓
	109 Her	18 22.6	+21 45			03:28	2½ m	0.48E					5.00	K2.5III							W.
	IC 4756 2	18 34.1	+04 59		03:39	03:54	10 m	0.33E			1.6'		6.53								seeing improved c.
	6	18 35.2	+05 20		04:00	04:40	35 m	0.12W	3-4"				7.86								✓
	δ Sge	19 39.9	+17 26		04:48	05:03	45/90/180 s	0:20E	3-4"				5.3	G9III		30s					✓
866	IC 4756 11	18 34.4	+05 23		05:39	07:40	115 m	3:13W	2-3"				9.73			30s					W.
	22	18 36.2	+5 31		07:46	09:16	85 m	4.98W					9.34			30s					sl. w
867	α PsA	22 56.2	-29 45		09.35	09:35	2/4/8 s	0:47W					1.25	A3V							✓
	ψ Peg	23 56.5	+25 00		09:41	09:53	4 m	0:04W					6.25	M3III							✓
	γ Peg	0 12.0	+15 03		09.58	10.01	4/8/16 s	0:04E					2.60	B2IV							✓
	χ Peg	0 13.3	+20 04		10:04	10:16	9½ m	0:11W	5"				6.38	M2+III							✓
	ι Cet	0 18.1	-8 58		10:21	10:29	24/48/96 s	0.18W					4.78	K1.5III							✓
	δ And	0 38.0	+30 44		10:35	10:44	30/60/120 s	0:14W					4.52	K3III							✓
	α Ari	2 5.8	+23 20		10:49	10:52	8/16/32 s	1.06E					3.15	K2III		30s					✓

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
868	IC 4756 33	18 34.3	+05 08	July 5/6 15	03 49	05:30	100m	01:07W	2"	3.40	100μ/.8		9.81		NeA	30s		IIaO		Cb, GKe	
	40	18 37.7	+05 31		05:34	07:45	125m	3.19W					9.96								
	15	18 37.8	+05 28		07:47	08:55	65m	4.28W					9.04								
	2	18 39.4	+04 56		08:57	09:08	10m	4.46W					6.53			30s					
869	ε Peg	21 43.0	+9 46		10:07	10:11	10/20/48s	2:40W	2"				3.98	K2Ib		30s					
	9 Peg	21 43.3	+17 14		10:15	10:20	2½m	2:44W					5.54	G5Ib							
	α Aqr	22 4.5	−0 26		10:24	10:27	9/18/36s	2:35W					3.91	G2Ib							
	φ³ Peg	01 8.5	+11 31		10:32	10:39	3m	0:18E					6.2	G0III							
	α Tri	01 51.7	+29 28		10:44	10:48	12/24/48s	0:52E					4.0	F6IV		30s					
870	IC 4756 2	18 34.6	+04 49	July 9 1975	5:39	05:50	10m	01:33W	1-2"				6.53			30s		IIaO			Some cloud
	21	18 36.3	+05 13		06:02	07:15	70m	02:58W					7.34			30s					
871	18	18 38.1	+05 29		07:31	08:55	80m	04:30W					9.12			30s					
	2	18 34.6	+04 50		08:59	09:06	6m	04.50W					6.53								
	β Aqr	20 30.3	−5 42		10:08	10:12	9/18/36s	4.01W					3.73	G0Ib							
	4R856	02 51.8	+16 23		10:20	10:26	5m	02:06E	2-3"				6.8	F5III							
	α Cet	03 1.0	+4 00		10:31	10:36	15/30/66s	02.06E					4.16	M1.5III		30s					
872	5 Lec	10 15.3	+23 33		23:13	23:18	18/30/72s	04:35E	2-3"	310	100μ/.8		3.74	F0III		30s				Cb, GKe	
	ε Vir	13 0.9	+11 06		23:28	23:31	7/33/66s	0:51W			1.0		3.8	G8IIIab							
	~~29 Her~~ 9 Sco	16 19.1	−24 07		23:40	23:51	33/99/198s	2:05E			1.0		5.35	A5II							
	~~29 Her~~	~~16 31.4~~	~~+11~~		~~23:59~~	~~24:02~~	~~90s~~	~~2:05E~~						~~K7III~~							
	22 Sco	16 28.7	−25 04		23:59	00:02	90s	2:05E			1.0		4.65	B2V							
873	IC 4756 10	18 37.2	+05 29		00:31	01:53	80m	2:23E			100μ/.8		9.09			30s				Tel. hit ladder	
	~~29~~	FOCUS	TEST		320–360					360	50μ/.8		~~1.60~~			30s					
874	35	18 36.9	+05 13		03:20	05:35	130m	1:17W					9.87			30s					
	31	18 37.9	+05 25		05:35	07:55	135m	3:38W					9.95								
	8	18 35.4	+05 44		07:57	09:16	75m	5:02W					9.04			30s					

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
875	γ Aql	19 45.1	+10 33	JULY 9 1975	09:32	09:38	20/40/80s	4:15W	4"	360	100μ/.8		3.8	K3II	NeA	30s		IIaO	MWP2		
	β Aql	19 54.1	+6 20		09:41	09:50	30/60/120s	4:18W					4.57	G8IV					7m		
	α Del	20 38.5	+15 50		09:52	09:59	15/30/60s	3:16W	3"				3.71	B9IV							
	2 Peg	21 28.8	+23 32		10:04	10:14	4m	3:07W					6.1	MiII							
					23:40																
876	IC4756 #2	18:34.1	+04 57	JULY 9/10 15	~~23:38~~	23:47	6m	4:24E	2-3"	360	"		6.53			30s		"		cb/6Ve	
	#20	18 34 8	+05 17		23:52	23:35	100m	2 37E					9.48								
	#29	18 35.3	+05 17		01:36	03:45	125m	3:28E					9.83								
	#44	18 37.1	+05 54		03:47	06:20	150m	2:06W					9.96								
	Comet 1975h	21 14.4	+07 56	AT	07:39:55						100μ/.8		8?								UNTRAILED
		21 14.25	+08 00	AT	08:27																
		21 13.6	+08 08			10:40	3h	3:51W								30s					
877	ε Vir	13 0.9	+11 06	JULY 11/12	23 15	23.19	15/30/60s	0:51W	2-3"	360	100μ/.8		3.8	G8IIIab	NeA	30s				cb/6Ve	
	o Sco	16 19.1	-24 07		23:31	23 39	45/90/180	2 05E					5.35	A5II							
	29 Her	16 31.4	+11 32		23 53	00:01	5m	2 00E					6.35	K7III							
	ε Oph	17 25.3	+4 10		00 10	00 17	3m	2 36E					5.87	K2II							
	109 Her	18 22.6	+21 45		00 25	00 33	31/75/150s	3 18E					5.00			30s					
878	IC4756 #37	18.36.1	+05 41		00:47	05:35	165m	00 35E	2"				10.00			30s					
	#41	18:37.6	+05 41		03:37	06:25	165m	0220W					10.00			30s					
879	Comet 1975h	21:08.1	+10 35		06:42	10:40	4h		2"		100μ/DECKER FULL OUT		12.5?			30s		UNTRAILED.		PRE-EXPOSED	
	+ occulted star to west (faint)	21 07.0	+10 59					0407W								30s	(HINT OF TAIL TO SOUTH WEST)			-1 SEC.	
880	IC 4756 #46	18 37.3	+05 25	JULY 12/13	01:18	04:00	160m	00:08E	2"	360	100μ/.8		10.00		NeA	30s		IIaO		cb/6Ve	
	#42	18 38.8	+05 22		04:02	[illegible]	155m						10.03								
	4	18 37.0	+04 50	JULY 13/14	23:55	00:17	20m	3 44E	3"				7.80								
	#2	18 34 1	+04 56		00 20	00:27	5m	3:33E					6.53								
	43	18 38.3	+05 36		00 37	03:30	170m		2-3"				10.03								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	1975 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
880 cont	IC4756 #14	18 38.2	+05 16	July 14	03.34	06:35	170m	2 38W	2-3"	360	100μ/.8		10.05		NeA	30s		IIaO	MWP-2 7min	Cb/Gve	
881	IC 4756 #17	18 37.6	+05 19	July 14/15	04 06	07 10	180m	3 15W	2"	360	100/.8		10.10		NeA	30s		"	"	Cb/Gve/SEC	
	COMET 1975h	20 42.4	+20 42		07 20	10:20	180m	4 21W					11.9			30s					

PLATE HOLDER LOOSE - OUT OF FOCUS, PLATE DISCARDED

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
882	ε Aqr	20h 46.1	-9 36	July 21/75	06 44	06 46	9/15/27s	1h 09W	<2"	360	100μ/.8	12A	3.78	A1 II	NeA	30s		IIa-O	MkP2	Gve	
	~~ζ Aqr~~	~~21h 26.3~~	~~-6 01~~				6/12/24						2.58						7th at 67°F		[illegible]
	α Del	20 38.5	+15 50		07:12	07.16	15/30/60s	1h 52E	2"				3.71	B9 IV							
	G Psc	23 26.6	+06 14		07:27	07:31	30/60/120s	2h 05E					5.4	K1		30s					[illegible]
883	λ Psc	23 40.7	+01 38		07:45	07:50	21/45/90s	0h 40E					4.7	A7		30s					
	ω Psc	23 57.8	+06 42		07:56	07:59	12/24/48s	0:48E					4.4	F4							
	ε Psc	01 01.7	+07 45		08:06	08:11	24/48/96s	1h 19E					5.2	K0							
	τ Psc	01 10.1	+29 55		08:19		36/72/144						5.6	K0							
884	ο Sgr	18 54	-26 24	July 31 Aug 1/75	04:36	04:36	6/12/24s	1h 32W	~3"	360	100μ/.8		2.1	B2.5V	NeA	30s		IIa-O		Gve	
	γ Aql	19 45.0	+10 29		04:50	04:53	10/21/42s	0h 55W					3.8	K3 II							
	β Aql	19 54.1	+6 18		05:00	05:10	45/90/180	1h 04W					4.57	G8 IV							
	α Del	20 38.4	+15 41		05:19	05:22	9/18/36						3.71	B9 IV		30s					
885	α Aqr	22 04.5	-00 33		06:40	06:43	18/36/72	0h 26W					3.91	G2 Ib		30s					
	α PsA	22 56.2	-29 45		06:49	06:50	3/6/72s	0h 19E					1.25	A3 V							
	γ Peg	0 12.0	+15 03		06:58	07:01	9/18/36	1h 17E					2.60	B2 IV							
	χ Peg	0 13.2	+19 53		07:08	07:15	3½m	1h 10E					6.38	M2 III		30s					
886	IC4756 #16	18 35.1	+05 09	Aug 19 1975	02 20	04 23	2h	1h 45W (?)		365			9.83			30s				Gve	[illegible]
	#13	18 34.7	+05 04		04:27	06 45	75m	3:15W (?)					9.43			30s					
887	IC4756 #53	18 37.3	+05 45	Aug 20	23.50	2:50	3h	1h 21W		365			10.12			30s				Gve	
	#52	18 36.3	+05 45		2:53	5:30	2h 30	4h 6W					9.91			30s					
888	IC4756 #49	18 35.4	+05 36	Aug 21	23:59	02:44	2h 45	1h 25W		330			10.11			30s					[illegible]
	#11	18 34.6	+05 26		02:46	05:16	3h 30	3h 58W					9.95 (?)			30s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
889	IC 4756 #2	18 40	+05 24	Aug 22 1975	23 32	01 53	2:20	0^h 34W	2"	330	100μ/.8	112 7.0	10.03		NeA	30s		IIa-O	MkP-2	Gve	
	#43	18 41.4	+05 38		01 55	04 25	2:30	3^h 07W					10:03						7^m at 67"		
	#7	18 39.5	+05 19		04.29	05 52	80^m	4^h 35W					4:43			30s					
890	IC 4756 #17	18 37.5	+05 22	Aug 23 1975	23 17	01 53	155^m	0^h 38W	2-3"	330	100μ/.8	112 7.0	10.10			30s				Gve	
	#49	18 35.5	+05 38		01 56	04 36	160^m	3^h 23W					10:11								
	#13	18 34.7	+05 10		04 38	05 58	80^m	4:46W					9.43			30s					
891	IC 4756 #53	18 37.3	+05 44	Aug 24 1975	23 20	01 56	155^m	0^h 50W	2"	330	100μ/.8	112/7.0	10.12		NeA	30s				Gve	
	#52	18 36.0	+05 44		01 58	04 13	135^m	3^h 10W					9.91			30s					
892	α Aqr	22 04.2	-00 25		05 45	05 48	1/3/24/48	1^h 16W					3.91	G2 IV		30s					
	λ Psc	23 40.5	+01 40		05:58	06 01	21/42/84	0^h 06E					4.7	A7							
	w Psc	23 57.8	+06 46		06:04	06 08	15/30/60	0^h 19E					4.4	F4		30s					
893	θ Psc	23 26.6	+06 14		06:28	06 34	36/72/144	0^h 40W	2-3				5.4	K1		30s					
	70 Psc	23 27.8	+12 34		06 36	06 42	36/72/144	0^h 48W					5.4	G8							
	4' Aqr	23 14.3	-09 15		06 48	06 54	30/60/120	1^h 12W					5.3	K0		30s					
894	λ Tri	01 51.0	+29 30		07 18	07 21	9/18/36	0^h 56E					3.9	F6 IV		30s					
	β Ari	01 52.8	+20 40		07 28	07 24	4/9/18	0^h 50E					2.8	A5 IV							
	α Ari	02 05.3	+23 20		07 36	07 38	1/2/24	1 05E					3.2	K2 III		30s					
895	IC 4756 25	18 36.1	+05 19	Aug 25 1975	23 27	0210	160^m	1^h 12W	2"/some clouds	330	100μ/.8	112/7.0	10.13		NeA	30s		IIa-O	MkP-2	Gve	
	19	18 34.1	+05 03		0213	0408	115^m	3^h 09W					9.75			30s					clouds
896	IC 4756 #4	18 38.4	+05 14	Aug 27 1975	23:25	0150	145^m	0^h 50W	<2"/low haze	330	100μ/.8	112/7.0	10.05		NeA	30s					T=4° N=40° wind 12 mph
	#16	18 35.2	+05 14		01 53	03:36	100^m	2^h 42W					9.83			30s					
~~897~~					~~05 42~~																

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
897	PN1	06h20.2	(1950) -00 19	Aug 27 1975	08:42	09:08	26m	3h 30E	2"/clear	340	100/0.6	112/8.26			NeA	1s		IIa D	MWP-2 7m at 67°	Gue	PN = possible nova 1st comp at Focus = 355
	PN2	06h20.2	-00 19		09:10	10:16	66m	2h 24E								1s					
898	[illegible]	06h 20.2	1950 -00.19	Aug 24 1975	08:03	08 43	40m	3h 50E	3"/clear	340	100	[illegible]			[illegible]	s		IIa-D	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible] 20.2	-00.19		08 45	[illegible]	[illegible]	[illegible]							[illegible]	[illegible]					
899	PN1	6h [illegible]	[illegible]	Aug 30 1975	[illegible]	[illegible]	[illegible]	3h 45E	3"/clear	340	100u/0.6	112/8.26			NeA	1s		IIa-D	MWP2	Gue	T=9° H=23%
	PN2	6h 20.2	-00.19		08 40	10 10	90m	2h 30E							NeA	20s					
900	PN 1	06h20.2	-00.19	Aug 31 1975	08:10	09 23	70m	3h E	2"/clear	340	100u/0.6	112/8.26			NeA	1s		IIa-D	MWP-2	Gue	T=8° WND CALM H=20%
901	S Aq 1	1975 19 24.2	+03 04	Sept 1 1975	03 10	03 12	7/15/30s	0h 47W	2"/some haze	335	100u/0.8	112/7.0	3.7	F0 IV	NeS	30s		IIa O	MWP-2	Gue	T=12° H=18%
	ν Aq 1	19 25.3	+00 15		03 20	03 25	24/48/96	2h 02W					5.3	F2 Ib							
	μ Aq 1	19 32.8	+07 19		03:33	03:38	30/60/120	2h 04W					5.6	K3 III							
	κ Aq 1	19 35.4	-07 09		03 43	03 47	18/36/72	2h 10W					4.9	B0.5 III		30s					
902	ε Aq 1	19 52.3	+08 21		04 01	04 08	33/66/132	2h 12W					5.7	K0 III		30s					
	β Aq 1	19 54.0	+06 20		04 11	04 16	18/36/72	1h 18W					4.6	G8 IV							
	α¹ Cap	20 16.2	-12 37		04 23	04 29	30/60/120	1h 10W					5.3	G3 Ib							
	α² Cap	20 16.7	-12 38		04 33	04 36	14/27/54	1h 17W					4.5	G9 III							
	71 Aq 1	20 37.0	-01 13		04 42	04 46	27/54/108	1 08W					5.3	G8 III		30s					
903	θ Aq 1	20 10.2	-00 54		04 57	04 58	3/6/12	2h 47W					3.2	B9.5 III		30s					
	ρ Aq 1	20 13.1	+15 04		05 05	05 10	21/42/84	2h 54W					5.0	A2 V							
	ε Del	20 32.2	+11 11		05 15	05 18	12/24/48	2h 46W					3.9	B6 III							
	α Del	20 38.5	+15 46		05 21	05 24	12/24/48	2h 45W					3.8	B9 V		30s					
904	PN1	06 20.2	1950 -00.19	Sept 1 1975	07:07	08:27	80m	3h 53E	2"/clear	340	100u/0.6	112/8.26			NeA	1s		IIa D	MWP-2		
	PN2	06 20.2	-00.19		08:29	10:09	100m	2h 11E								1s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS	REMARKS
405	ν Oph	17 57.6	-09 47	Sept 2 1975	02 18	02:21	1,2,4,8	1h 18W	3" / Clear	335	100μ / 0.8	117 / 7.0	4.3	G9 III	NeA	30s		IIa-O	MWP-2	Gve	T=12° H=20% WIND CALM.
	71 Oph	18 05.4	08 43			02 38	110s	1h 26W					5.6	G8III-IV							
	74 Oph	18 19.5	+03 24		02 42	02 46	120s	1h 21W					5.7	G8III							
	β Sct	18 45.7	-04 48		02 54	03 01	30,60,120	1h 10W					5.3	G5 II							
	α Sge	19 38.7	+17 56		0310	0313	70s	0h 24W					5.1	G-O II							4 Time is an hour early
	β Sge	19 38.7	+17 22		0317		120s						5.4	G8 II							
	η Aql	19 50.9	+00 57		0329	0331	70s	0h 36W					5.3	G2 Ib		30s					
406	ζ Sct	18 22.2	-8 56		03 42	0345	90s	2h 18W					5.6	K0III	NeA	30s					
	τ Sgr	19 05.3	-27 41		03:50	03 55	18,36,72	1h 45W				4.5	3.3	K2III							
	λ Sgr	18 26.3	-25 24		03:58	04 01	9/18/36	2h 29W					3.8	K2 III							
	μ Aql	19 32.8	+07 22		0407	04 10	110s	1h 30 W					5.6	K3III							
	γ Sge	19 57.6	19 24		0415	04 24	36,72,144	0h 21 W					5.0	K5+ III		30s					
407	Jup Sat	01 31.4	+07 58		05 17	05 28	1m 2m 4m	1h 10E	3"-4"					G2 IV	NeA	30s					
	ε Psc	23 38.5	+05 29		05 48	05 54	21, 42 84s	0h 10W					4.6	F7 IV							
	ω Psc	23 57.9	+06 43		06 00	06 05	20 40 80	0h 02W					4.5	F4 IV							
	χ Cet	02 48.3 (1950)	+10 51		06 17	06 24	30 60 120	1h 20E					5.0	F2 IV		30s					
408	PNZ	06 20.2 (1975)	-00 19		07 05	0938	150m	2h 50E		340	100μ / 0.6	112 / 8.2				1s		IIa-D			
409	62 Sgr	20 00.9	-27 42	SEPT 3 1975	04 03	04 11	200s	2h 16 W	3"	335	100μ / 0.8	112 / 7.0	6.2	M4III	NeA	30s		IIa-O	MWP2	Gve	T=14° H=20%
	3 Aqr	20 46.3	-05 03		04 18	0422	90s	1h 41W					5.9	M3III							
	ω Cap	20 30.2	-26 56		04 26	0436	88/180s	1h 45W					5.7	M1III							
	3 Aqr	20 46.3	-05 03		04 40	0450	200s	2h 09W					5.9	M3III							
	24 Cap	21 05.5	-25 02		0455	05 05	230s	2h 06W					6.1	M1III							
	1 Gru	22 04.6	-39 32		0514	0528	200s	2h 30W					5.8	MC							
	λ Aqr	22 50.1	-07 38		0535	0541	140s	0h 51W					5.4	M2III		30s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 58

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
9/0	[illegible]	23 [illegible]	-04 14	Sept 8 1975	[illegible] 52	0557	[illegible]	[illegible]	[illegible]	345	[illegible]	[illegible]	4.3	F5 V	NeA	30s		IIa-0	MWP-2	[illegible]	
	20 Aqr	23 41.3	+7 38		F[illegible]	20 4	24,40,46	[illegible]					4.5	B9.5 II							
	[illegible]	23 24.6	-2 17		[illegible] F18	F35	[illegible]	[illegible]					4.9	B1 V							
9/11	w Aqr	22 01.9	-02 14	Sept 7 1975	02.56	03 00	30, 60, 120	0h 35E	2" clear	350	100A/0.8	112/7.0	4.7	B8 II	NeA	30s		IIa-0	MWP-2	Cuve	
	31 Peg	22 20.0	+12 03		03 11	03 23	40, 80, 160	0h 22E					5.0	B2 II							
	32 Peg	22 20.0	+28 11		03 27	03 35	40, 80, 160	0h 34E					4.8	B8 III							
	ε Aqr	22 24.3	-10 51		03 42	03 51	30, 72, 144	0h 42E					4.8	A0 III		30s					
9/12	w Peg	22 40.4	+24 06		04 01	04 11	30, 72, 144	0h 52E					4.7	A1 V		30s					
	ψ Peg	22 53.9	+08 46		04 16	04 27	40, 80, 160	0h 06E					4.9	A1 IV							
	α PsA	22 56.3	-29 48		0433	0434	2, 4, 8	0h 01E					1.1	A3 V							
	δ Scl	23 46.8	-28 21		0438	0445	24, 48, 96	0h 40E					4.6	A0 V							
	τ Peg	23 19.3	+23 23		04 50	0458	22, 44, 88	0h 01W					4.4	A5 III							
9/13	Nova Cyg 75	21 09.9	+47 56	Sept 8 1975	00:15	00:32	9, 18, 36		2-3" [illegible]	350	100A/1.2	112/7.0			NeA	30s		IIa-0	[illegible]	Cuve	
9/14	Nova Cyg 75				03 10	03:17	20, 40, 80	0h 30W		345	100W/1.2	112/5.25			NeA	1s		IIa-0		Cuve	
9/15	γ Sgr	18 03.4	-30 26	Sept 8 1975	01 08	01 17	22, 44, 88	1h 57W	3" [illegible]	350	[illegible] 1.2	112/7.0	4.0	K0 III	NeA	30s		IIa 0	MS 62° 15sec	Cuve	[illegible]
	η Sgr	18 15.6	-36 47		01 21	01 29	30, 60, 120	1h 57W					4.7	M3 II							
	δ Sgr	18 19.1	-29 50		01 33	01 39	25, 50, 100	2h 04W					4.1	K2 III							
	ε Sgr	18 22.2	-34 24		01 43	01 44	4, 8, 16	2h 06W					1.5	B9 IV		30s					
9/16	α PsA	22 56.0	-29 47		06 10	06 11	2, 4, 8	2h W	4" clear				1.3	A3 V		30s / 3s				Cuve	[illegible]
	α Phe	00 24.8	-42 28		06 18	06 23	18, 36, 72						3.5	K0 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
917	HD 15223	2h 25.7m	+07° 25'	27 Sept/75	7 3.	7.34	15, 30, 30, 55	4h 40m W	2"/clear	340	100μ/.8	112/642	6.5	F5 V	1/2	1/2	1/2	IIa-D	103a	Schaefer	one exp
	"	"	"		7.49		"	"	"	"	"	" 3,42	"	"	"	"	"	"	"	"	two 10m exp.
918	PKS 1925-524			29 Sept/75	00:03.5	00.15.5	~12m	0h 05m W	1½"	"	100μ/.6	"	~11	?	"	"	"	"	"	"	
919	"	19h 27.7	−52° 28'		01:44	01:01	~15m	0h 52m W	2"		"		"								
					01:04	01:205	~15m	1h 12m W													
					01:22	01:40	~15m	1h 32m W													
					01:42	02:00	"	1h 52m W													
					02:03	02:26	"	2h 13m W													
920	"				03:04	03:25	~20m	3h 19m W													
921	"				04:"	04:30	~25m	4h 33m W													
922	"	"	"	30 Sept/75	00:08	00:30	~15	0h 45m W	4" (clear)												
					00:31	00.50		1h 07m W													
					00:52	01:12		1h 30m W													
					01:14	01:30		1h 50m W													
					01:32	01:52		2h 11m W													
923	HD 217131	22h 57.1m	−01° 33'	"	03.15	03.34	≈45m	0h 03m W	2"				6.4	F2	"	"		"			
	HD 219175	23h 12.8m	−09° 04'		03.48	03.51	2m 15s	0h 25m W					8.3	dF5							
	HD 220773	23h 25.2m	+08° 30'		03.55	04:01	~1m	0h 12m W					7.1	F9							
	PKS 2332-66	23h 35.7m	−66° 45'		04:25	04:51	20m	1h 05m W					~11	?							
924	Nova Cyg 75	21 09 q	+47 5C		≈ 26	12 50	2m	2h 00m W	1's		340	50μ/1.2	112/		NOA 1			IIa-D		Schaefer	plate dark!!?

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. (1975)	DEC	DATE U.T	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. (v)	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
925	ϕ Eri	2 15.6	-51 38	Dec 8,9 1975	02 48	02 57	30,60,120/60	01 04W	3" /pk	340	50/1.2	112/7.0	3.8	B8	NeA	2m 30s		IIa-O	MS 15m.07 67°	Cue	
	κ Eri	2 26.1	-47 49		03 05	03 14	36,72,144/60	01 11W					4.4	B5							
	s Eri	2 38.8	-43 00		03 17	03 26	36,72,144/144	01 10W					4.5	A2							
	ι Eri	2 39.7	-39 58		03 31	03 40	33,66,132/144	01 24W					4.1	K0							
	β For	2 48.0	-32 31		03 43	03 53	36,72,144/5m	01 31W					4.5	K0							
926	θ Oct	0 00.3	-77 12	Dec 9,10 1975	00 58	01 04	80,160s/5m	1h 28W	2-3" /pk	340	50/1.2	112/7.0	4.7	K0	NeA	2m 30s					
	γ Tuc	0 18.8	-65 01		01 09	01 14	70,140/180	1h 22W					4.3	F8							
	β Hyi	0 24.5	-77 23		01 19	01 22	15,30,60/60	1h 23W					2.9	G0							
	β Tuc S	0 30.4	-63 06		01 33	01 40	80,80,160/160						4.5	A2							Color poor
	" N	"	"		01 42	01 52	40,80,120/160	1h 48W					?(4.5)	?							
927	β Phe	1 05.0	-46 51		02 06	02 12	20,40,80s/80	1h 33W					3.3	K0		2m 45s					
	γ Phe	1 27.3	-43 27		02 15	02 23	30,60,120/120	1h 22W					3.4	K5							
	δ Phe	1 30.2	-49 12		02 27	02 32	35,70,140/140	1h 33W					4.0	K0							
	ψ Phe	1 52.6	-46 25		02 46	02 54	2m,4m/4m	1h 33W					4.4	M3							
	-47° 547	1 56.2	-47 30		03 03	03 18	3m,6m/6m	1h 48W					4.7	G5							
928	τ^3 Eri	3 01.3	-23 43		03 31	03 35	20,40,80s/80	1h 00W					4.2	A3		2m 45s					
	α For	3 11.0	-29 05		03 38	03 45	18,36,72/72	0h 54W					3.9	F8							Comp. is Neon lamp 3.4 " "
	16 Eri	3 18.4	-21 51		03 47	03 54	40,80,160/160	1h 08W					3.9	M3							
	τ^5 Eri	3 32.7	-21 43		04 03	04 08	24,48,96/96	1h 02W					4.3	B8							
	τ^6 Eri	3 45.8	-23 19		04 11	04 17	30,60,120/120	0h 54W					4.3	F8							
929	41 Eri	4 16.9	-33 52		04 37	04 41	15,30,60/60						3.6	B9							
	43 Eri	4 23.1	-34 04		04 50	04 56	30,60,120/120	1h 00W					4.1	K5							
	50 Eri	4 32.5	-24 49		04 58	05 08	40,80,160/160	1h 02W					4.6	K0							
	ν Eri	4 34.6	-30 37		05 10	05 15	24,48,96/96	1h 07W					3.9	K0							
	γ Cae	5 03.5	-35 31		05 21	05 34	40,80,160/160	0h 57W					4.6	K0							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
430	ε Lep	5 04.4	-22 24	Dec 9,10 1975	05 53	05 57	15,30,60s	1h 19w	4" / pk	340	50μ / 1.2	112 / 20	3.3	K5	NeA	2e4os		IIa-O	M-S	G.E.	
	-21° 1135	5 19.4	-21 16		06 00	06 07	35,70,140	1h 15w					4.7	A0							
	β Lep	5 27.2	-20 47		06 11	06 13	9,18,36	1h 13w					3.0	G0							
	γ Lep	5 43.4	-22 27		06 17	06 20	20,40,80	1h 04w					3.8	F8							
	δ Lep	5 50.2	-20 53		06 23	06 28	~~17,34,68~~ 25,50,100s	1h 05w					3.9	K0							
431	γ CMa	6 19.3	-30 03		06 44	06 47	13,26,52s	0h 56w					3.1	B3		2e4os					
	λ CMa	6 27.2	-32 34		06 50	06 54	40,80,160	0h 58w					4.5	B9							
	4 CMa	6 30.8	-23 24		07 02	07 10	35,70,140	1h 07w					4.3	B1							
	ξ² CMa	6 34.0	-22 57		07 12	07 22	40,80,160	1h 17w					4.5	A0							
	κ CMa	6 48.9	-32 29		07 32	07 34	24,48,96	1h 18w					3.8	B2p							
432	ε CMa	6 57.6	-28 56		07 52	07 53	← 4,8,16s	1h 23w					1.6	B1							
	σ CMa	7 00.6	-27 54		07 56	08 04	← 33,66,132						3.7	K5							
	σ² CMa	7 02.0	-23 48		08 06	08 10	← 15,30,60	1h 35w					3.1	B5p							
	δ CMa	7 07.4	-26 21		08 12	08 14	← 6,12,24	1h 34w					2.0	F8p							
	27 CMa	7 13.2	-26 19		08 16	08 28	← 50,100,200s	1 43w					4.7	B5p							
433	ε Phe	0 08.1	-45 53	Dec 10,11 1975	01 11	01 18	30,60,120s	0h 44w	3-4" / ring circle				3.9	K0							
	κ Phe	0 25.0	-43 49		01 22	01 28	25,50,100s	0h 37w					3.9	A3							
	μ Phe	0 40.1	-46 13		01 31	01 41	1m2m4m	0h 35w					4.6	K0							
	η Phe	0 42.2	-57 36		01 45	01 54	1m2m4m	0h 51w					4.5	A0							
	ξ Phe	1 07.3	-55 23		02 03	02 13	36,72,144s	0h 40w					4.1	B8							
434	λ Scl	0 57.4	-29 30	Dec 11/12 1975	00 47	00 53	25,50,100s	0h 31w	2"				4.4	B5							
	λ Eri	1 36.8	-57 22		00 58	01 00	6,12,24s	0h 01E					0.6	B5							image out of focus
	χ Eri	1 55.0	-51 44		01 06	01 11	15,30,60s	0h 08E					3.7	G5							
	η² Hyi	1 54.3	-67 46		01 16	01 24	50,100,200s	0h 10W					4.7	K0							
	λ Hyi	1 58.0	-61 41		01 33	01 35	8,16,32s	0h 13w					3.0	F0							

NUMBER	OBJECT	R.A. (1975)	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (V)	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
935	δ Hyi	2 21.3	-68 46	Dec 11/12 1975	01 49	01 56	24,48,96	0h 10W	2-3"	340	50μ / ~~7.2~~ 0.8	112/70	4.3	A2	Ne	2@40s	/	IIa-O	MS 67° 15m	Gue	
	ε Eri	2 39.2	-68 22		01 59	02 08	24,48,96	0h 06W					4.3	B9							
	ν Hyi	2 50.6	-75 10		02 12	02 24	1m,2m,4m	0h 09W					4.7	K2							
	β Ret	3 43.9	-64 53		02 27	02 36	30,60,120s	0h 32E					3.8	K0							
	γ Hyi	3 47.6	-74 19		02 42	02 49	30,60,120s	0h 22E	4"				3.2	M0							
936	θ Eri W	2 57.3	-40 24	"	03 06	03 12	12 24,48	0h 50W	2"				3.4	A2							trailed in dec
	E	"	"		03 14	03 24	30,60,120	0h 04W					5.0 (?)								
	82 G. Eri	3 18.4	-43 10		03 28	03 36	30,60,120	0h 56W	2"				4.3	G5							
	y Eri	3 36.2	-40 21		03 38	03 47	36,72,144	0h 47W					4.6	K0							
	h Eri	3 41.9	-37 23		03 50	03 57	40,80,160						4.6	K2							
	~~g Eri~~	~~3 48.5~~	~~-36 16~~										4.2	K2							
937	α PsA	22h 56.2	-29° 45	Dec 12/13 1975	00 35	00 37	2,4,8,16,32s	2h 21W	2"/clear	286	50μ / 1.2	67/4.45	(B) 1.3	A3V	NeA	60s		IIa-O	MS 15m at 6FF	rG	
	ψ² Aqr	23h 16.6	-09 19		00 47	01 04	1m,2m,4m,8m/3m	1h 28W	1½"/"				4.24	B5V							
	HR 875	2h 55.2	-03° 51		01 10	01 28	4m,8m/8m	0h 46E					5.25	A1V							
938	χ Peg	00 13.2	+20° 01	"	01 40	02 36	50m / ✓	3h 04W	"				6.38	M2 III	NeA	60s				"	
	HD 1014	00 13.3	-07 54		02 42	03 42	60m / ✓	4h 10W					6.72	M3 III							
	HD 27524	04 20.0	+20 58		03 50	04 45	55m / ✓	01h 6m W	1"/clear				7.24	F5V							
	π³ Ori	04 48.4	+6° 55'		04 49	04 57	1,2,4m / 2m	0h 50m W					3.64	F6V							
	η Aur	05 04.8	+41° 12		05 00	05 11	12 4m / 2m	0h 48W					3.00	B3V							
939	θ Aur	05 57.8	+37° 12	"	05 21	05 23	90s / 70s	0h 06W					2.58	B4.5pv	NeA	60s				"	
	θ Gem	06 50.9	+33 55		05 27	05 33	5½m / 5m	0h 36E					3.69	A3 III							
	μ Gem	06 21.3	+22 26		05 37	05 57	20m / 10m	0h 17E					4.55v	M3 III							
	ν Gem	06 27.5	+20 07		06 00	06 08	8m / 3m	0h 22E					4.04	B7 IVe							
	ε Gem	06 42.1	+25 05		06 11	06 21	10m / 9	0h 20W					4.39	G8 Ib							
	τ Gem	07 09.5	+30 14		06 24	07 04	40m /	0h 36m W					3.66	K2 III							
	α Gem	07 33.0	+31 53		07 10	07 10	1m /	0h 19W					1.6	A							[illegible] A=1.97 separated B=3.02
	σ Gem	07 41.7	+28 49		07 14	07 46	32m / ✓	0h 46W					5.3	K1 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. (1970)	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. (B)	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
934 cont	K Gem	07 42.8	+24 19	Dec 12/13	07 44	08 02	12m / .	0h01w	2" / clear	286	50μ / 1.2	C7 / 445	+450	G8 III	NeA	60s	NONE	IIaO	MS	rG	
	β Gem	07h 43.5	+28 06	1975	08 04	08 07	3m v	0h05W	3"				2.18	K0 III					15m at		
	10 UMa	08h 58.7	+41 54		08 10	08 21	11m 8m /	0h05W					4.38	F5 V					C7 F		
	38 Lyn	09h 17.0	+36 56		08 26	08 32	6m +m	0h04E	2"				3.84	A2 V							A+B
	γ Cnc	08 41.6	+21° 35		08 38	08 49	10m 2m	0h48mW					4.72	A1 V							
940	γ Peg	00h 11.9	+15° 03	Dec	00 18	00 20	15,30,60s v.	0h 52w	1½" / clear	286	50μ / 1.2	C7 / 445	2.60	B2 IV	NeA	60s	NONE	IIa-O	M-S	rG	
	ψ3 Psc	01h 08.6	+19° 31	13/14 1975	00 24	[illegible]	6,12,24m 14"	0 [illegible]w					~6.	G0 III							
	α Tr	01h 51 7	+29° 28		01 18	01 31	23" v	0 27w					4.0	F0 IV							
	HR 856	02 51.8	+16° 23		01 35	02 04	21m B-	0 03E					6.8	F5 III							
	35 Ari	02 41.5	+27° 35		02 07	02 12	3½m 4m	0 15w					4.58	B3 V							
941	17 Per	02 49 7	+34° 56	"	02 22	03 16	55m / √	1h12mW	2-3" / clear				6.09	K7 III	NeA	60s					
	o PER	03 42.4	+32°12'		03 21	03 24	2m / 7m	0h27mW					3.88	B1 III							
	ε PER	03 55.8	+39 56'		03 27	03 29	1m / .	0h19mW					2 71	B0.5 IV							
	ζ PER	03 52.2	+31 48		03 34	03 36	1.2m / .	0h30mW					2.96	B1 Ib							
	ξ PER	03 57.0	+35°42'		03 39	03 43	2m / m	0h32mW					4.04	O7							
	L AUR	04 55.0	+33 02		03 48	03 58	10m / .	0h11mE	3" / clear				4.13	K3 II							wind increasing 20 mph T-15C
	4 AUR	04 57.5	+37°52'		04 07	04 17	10m / .	0h6mW					4 95	K0 V							
	HD 34078	05 14.6	+34 22		04 21	04 32	11m / m	0h04W	2" / .				6.0	O9.5V							
	HD 34452	05 16.8	+33 43		04 36	04 47	11m / m	0h16w	1½"				5.21	Ap							ID? OK
	19 Aur	05 17.8	+33 55		04 50	05 00	10m / m	0h27w					5.03	A5 II							ID? " OK
	HD 35600	05 25.0	+30 10		05 02	05 22	20m / .	0h43w					5.83	B9 Ib							
	X Aur	05 30.5	+32 10		05 25	05 31	6m / m	0h47w					4.84	B5 Iab							
942	κ Aur	06 13.5	+29° 31	"	05 41	05 53	12m / √	0h25W					5.37	G8 III	NeA	60s					
	ζ Gem	07 02.3	+20° 37		05 55	05 59	4m / √	0h16E					4.3	F7 Ib							
	δ Gem	07 18.3	+22 02		06 02	06 04	1m / .	0h28E					3.36	F0 III							
	L Gem	07 23.4	+27 52		06 06	06 15	9m / √	0h23mE					4.79	K0 III							
	ν GEM	07 34.1	+26 58		06 18	06 48	30 / √	0h00					5.56	M0 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. (1970)	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
942	38 Gem	06h 53.0	+13° 13	Dec 13,14 1975	06 51	06 57	6m / ✓	1h 00W		286	504 / 1.2	67 / 445	4.9	F0 Vp				IIa-O	Ms	rG	
cont	δ Cnc	08h 43.0	+18° 16		07 01	07 12	11m / -	0h 45E					5.1	K0 III							
	α Cnc	08h 56.8	+11° 58		07 15	07 18½	3½m / -	0h 51E					4.2	Am							
	ι Cnc	08h 44.9	+28° 52		07 21	07 31	10m / ✓	0h 27E					5.2	G8 III							
	12 Leo	09 22.9	+26° 19		07 34	07 56	22m / ✓	0h 34E					5.7	K2 III							
	λ Leo	09 30.0	+23° 06		07 59	08 24	25m / ✓	0h 20E					5.6	K5 III							
	+2° 1857	08 00.7	+02 25		08 27	08 37	10m / ✓	1h 22W	1.4				5.65	K2 III							
	ρ Hya	08 46.8	+05 57		08 40	08 42	2m / ✓	0h 41W					4.30	A0 V							
943	ν Oct	21h 38.2	-77° 31	Dec 14/15 1975	00 32	00 38	6m / ✓	3h 44 W	1½ / cirrus	286	504 / 1.2	67 / 445	4.74	K0 III	NeA	60s	NONE	IIa-O	M-S	rG	
	β Oct	22 43.1	-81° 32		00 42	00 45	3m / ✓	3h 55W					4.35	dA9							
	ι Gru	23 08.7	-45° 25		00 50	00 57	7m / -	2h 38W					4.91	K0 III							
	Q Gru	23 05.2	-43 41		00 59	01 03	4m / -	2h 46W	1.2"-1.5"				4.70	F6 IV							
	β Gru	22 40.9	-47° 03		01 06	01 10	4m / -	3 19 W	2"				3.76	M3 II							
	δ² Gru	22 28.0	-43° 54		01 14	01 54	40m / -	3h 15W					6a3	g M6							
	γ Tuc	23 15.7	-58° 24		01 58	01 05	6m / -	3h 39W	2-2½"				4.38	F0 III							
	ε Tuc	23 58.4	-65 45		02 09	02 15	5½m / 7m	3h 06W					4.39	B7 IV							
	ξ Tau	03 25.5	+09 38		02 31	02 34	2½m / 3m	0h 03E	~2" /				3.66	B8p							
	10 Tau	03 35.3	+00 18		02 36	02 42	5½ / 7m	0h 05W	1.5" /				4.86	F8 V							
	ν Tau	04 01.6	+05 54		02 44	02 46	2m / 2½m	0h 27E	1½" / cirrus				3.92	A1 IV							
	μ Tau	04 13.9	+08 49		02 47	02 50	2½ / ✓	0h 33E	"				4.23	B3 V							
944	δ Ari	03 09.9	+19 37		02 58	03 09	10½ / -	0h 47W					5.2	K2 III							
	5 Tau	03 29.2	+12 50		03 11	03 21	10 / -	0h 40 W					5.3	K0 II-III							
	λ Tau	03 59.0	+12 24		03 26	03 28	2m / ✓	0h 17 W					3.6	B3 V							
	68 Tau	04 23.8	+17 52		03 30	03 34	4m / 5	0h 01 W					4.35	A3 V							
	71 Tau	04 24.6	+15 33		03 36	03 40	4m / 5	0h 04W					4.73	F0 V							
	ρ Tau	04 32.1	+14 47		03 41	03 46	4½ / -	0h 02 E					4.9	A8 V n							
	88 Tau	04 34.0	+10° 06		03 48	03 51	3½ / -	0h 06 E					4.44	Am							
	90 Tau	04 36.5	+12° 27		03 53	03 56	2½ / 4m	0h 08W					4.15	A6 V n							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. (1970)	DEC	DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
944 (cont)	7 Ori	04 53.2	+10 06	Dec 14/15 1975	03 58	04 02	4m / ✓	0h 02E	1½"/cirrus	286	504/1.2	67/4.45	4.73	A0p				IIaO	MS	RJ + Jture	
	9 Ori	04 54.7	+13 28		04 04	04 12	8m / ✓	0h 06W					5.3	K2 III							
	11 Ori	05 02.9	+15 22		04 14	04 18	4m / ✓	0h 04W					4.60	A0p (s)							
	37 Tau	04 02.9	+22° 00		04 20	04 33	12½m / ✓	1h 17W					5.5	K0 III							contamination from comparison ??
945	K Tau	04h 23.6	+22 14	"	04 43	04 47	4m / 3m	1h 13W	1½"/cirrus				4.36	A7 IV	NeA	60s				"	
	ν Tau	04 24.5	+22 45		04 49	04 53	4m / ✓	1h 18W					4.56	A8 IVn							
	τ Tau	04 40.4	+22 54		04 55	04 57	2m / ✓	1h 06W					4.20	B3 V							
	ι Tau	05 01.3	+21 33		04 59	05 03	4m / ✓	0h 51W					4.78	A7 V							
	ζ Tau	05 35.9	+21 08		05 05	05 06	36s / 1m	0h 20W					2.94	B2 III p							
	136 Tau	05 51.4	+27 36		05 08	05 12	3.5m / 2m	0h 10m W					4.50	A0 III							
	χ' Ori	05 52.6	+20 16		05 15	05 23	7m / ✓	19m W					5.00	G0 V							
	1 Gem	06 02.3	+23 16		05 25	05 33	8m / ✓	20m W					5.1	gG5							
	η Gem	06 13.1	+22 31		05 35	05 46	10m / 6m	22m W					4.9	M3 III							
	ζ Ori	06 10.2	+14 13		05 49	05 51	2m / ✓	30m W					4.2	B3							
	30 Gem	06 42.3	+13 16		05 54	06 04	10m / ✓	12m W					5.6	K1							
	ξ Gem	06 43.6	+12 56		06 06	06 08	2m / 1.5						3.81	F5							
946	HD 46202	06 30.6	+05 00		06 23	07 54	90m / 120	2h 13W					8.36 ~~8.46~~	C9 V	NeA	60s				1.	T = 60°F = 15°C
	ρ Gem	07 27.2	+31 51		07 57	08 02	4½m / 6m	1h 23W					4.18	F0 V							
	α Lyn	09 19.2	+34° 31		08 03	08 13	10m / 4m	16m E					4.71	M0 III							
	10 LMi	09 32.4	+36 32		08 16	08 28	12m / 20m	0h 14 E					5.46	G8 III							
	ε Leo	09 44.2	+23° 55		08 30	08 33	2.5m / ✓	0h 22E	1"				3.80	G0 II							
	ζ Leo	10 15.0	+23 34		08 35	08 37	2m / 3m	0h 57 E					3.76	F0 III							
	21 LMi	10 05.7	+35 24		08 39	08 43	4m / 7m	0h 32E					4.66	A7 IV							
	β LMi	10 26.2	+36 52		08 45	08 53	8m / 15m	0h 47E					5.11	G8 III-IV							twilight ?
947	α Scl	00 57.4	−29 29	15/16	00 35	00 38	3m / 2.5m	0h 32m W	1½"/cirrus	286	50µ/1.2	67/4.45	4.4	B8p	NeA	60s	None	IIa-O	M-S		
	δ Gru	22 27.5	−43 39	DEC 1975	00 48	00 55	6m / ✓	3h 19m W					5.0	G5					15 mm 67°F		
	α Gru	22 06.3	−47 06		00 58	00 59	12s / ✓	3h 45m W					1.6	B5							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

Moon AT 3.20 m +18 (full on 18 Dec)

NUMBER	OBJECT	R.A. 1970	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
947	χ Scl	23 17.2	-32° 42'	15/16	0110	0123	1m / ✓	2h 57m W	1.5"/cirrus	286	50μ/1.2	64/4.45	5.5	G8 III	NeA	60s	NONE	IIa-O	M-5 12mm GAF		T=14°E H=58%
(cont)	β Scl	23 31.4	-37 51	PEC	0126	0129	3m / "	2h 38m W	"				4.3	Ap							
	88 AQR	23 07.8	-21° 20'	1975	0132	0139	7m / ✓	3h 23m W	"				4.9	K0 III							
	98 AQR	23 21.4	-20 16		0141	0150	9m / ✓	3h 20m W	"				5.1	K0 III							
	99 AQR	23 24.5	-20 48		0152	0212	20m / ✓	3h 40m W	"				5.86	K5 III							
	δ Scl	23 47.4	-28 18		0215	0218	3m / ✓	3h 22m W	"				4.58	A0 V							
	γ TRI	02 15.5	+33 43		0223	0226	3m / "	1h 3m W	2" / cirrus				4.1	A0 V							
	π PER	02 56.8	+39 33		0229	0234	4m / "	30m W	"				4.6	A2 V							
	39 ARI	02 46.1	+29 07		0237	0252	15m / "	58m W					5.5	K1 III							
948	MOON	3 25.9	+19 06	"	0305	0305	2s / "	3s W	1	"	"	"	?	G2 V	"	"	"	"	"	"	
	ϵ ERI	3 31.5	-09 33		0311	0317	3m / ✓	37m W	1" / cirrus				4.6	K2 V							
	4 AUR	4 57.1	+37 50		0322	0334	12m / "	30m E	2" / "				4.95	A0 V							
	34078	5 14.1	+34 17		0337	0401	24m / ✓	21m E	"				6:	O9.5 V							
	ρ Aur	5 19.7	+41 46		0403	0410	1m / "	18m E	"				4.9	B5 V							
	19 Aur	5 17.8	+33 55		0416	0431	15m / "	5m W	1.5" / clear but hazy				5.3	A5 II							idem? dc
	X Aur	5 30.5	+32 10		0433	0443	9m / "	4m W	1.5" / clear "				4.9	B5 I-b							
	MARS	5 27.2	+26 03		0449	0450	1s / 1s	15m W					?	G2 V							(8 Trans.)
	HR1765	5 20.3	+08 24		0453	0503	9m / "	35m W	1" / hazy				5.68	B0.5 V							Moon alt. 3mm interruptus
	119 TAU	5 30.3	+18 34		0505	0548	40m / 50m	1h 10m W	1.5" / "				4.7H,5	M2 I-b							
	56 ORI	5 50.7	+01 51		0550	0618	28m / "	1h 20m W					6.2	K2 II							
	134 TAU	5 47.7	+12 38		0623	0627	3.5m / 4m	1h 33m W					4.8	B9 IV							
949	ν ORI	6 5.7	+14 47		0636	0638	2m / 3m	1h 25m W					4.15	B3 V							
	3 GEM	6 7.7	+23 8'		0641	0658	16m / 20m	1h 43m W					598	B2.5 Ib							Beautiful sun tomorrow!
	HD 43818	6 17.0	+23 25		0702	0734	32m / "	29m W	1" / hazy				7.2	B0 II							
	β CNC	8 14.9	+9 17		0743	0751	8m / "	3m W					5.0	K4 III							
	η HYA	8 41.7	+3 30		0754	0756	17 2m	7m W					+10	B3 V							
	Σ HYA	8 53.8	+6 40		0759	0801	2m / ✓	0h 0m					4.11	G4 II-III							
	ρ LEO	10 31.2	+9 28		0805	0806	1" / 1.5	1h 32m E					3.71	B1 Ib							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	HA END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
949	ν Vir	11 44.3	+6° 42'	15/16	0811	0826	15m / ✓	2h 26m E	1.5 / clear	280	50μ / 1.2	67 / 4.45	5.56	M1 III	NeA	60s	N.NE	IIa-O	M-S	✓	
(cont)	β Vir	11 49 1	+1 56	DEC 1975	0824	0831	2m / 2m	2h 25m E	"				4.16	F1 V							
	η Leo	10 05.7	+16 55		0835	0836	1m3 / 1m	0h 37m E					3 46	A0 I b							
	α Leo	10 06.8	+12 07		0838	0839	8s / 1m	35m E					1.25	B7 V							
950	Twilight Sky ↓ at ε Per				0024	0039	10m / —	3h 56m W													
950	ε Per	21 42.7	+09 44	16/17	0040	0050	10m / ✓	4h 3m W	~4h / clear	"	"	"	3.80	K2 I b	"	"	"	"	"	✓	wind < 5 mph T=14° C 11 55%
	β Aqr	21 30.0	−05 42	DEC 1975	0052	0103	10m / 8m	4h 28m W	4" / "				3.68	G0 I b							
	α Aqr	22 04.2	−00 28		0105	0111	5m / ✓	4 04 W	2" / "				3.92	G2 I b							
	ρ Tri (3)	2 07.8	+34 51		0115	0119	1m1m / 1.5	0h 6m W	2" / "				3.13	A5 III							first exp in a series
	16 Per	2 48.7	+38 12		0121	0128	6m+ / 9m	0h 25m E	2" / "				4.56	F2 III							
	ρ Per	3 03.2	+38 44		0131	0156	25m / ✓	11m E	2" / "				5.2	M4							
	35 Ori	2 41.7	+27 35		0159	0203	4h / ✓	17m W	1" / "				.44	B3 V							
	Jupiter Sat	0h 56.7	+04 39		0210	0219	9m / 15m	2h 20m W	2" / "				5.0:	G2 V							
	π³ Ori	4h 48.2m	+6° 55'		0224	0227	2m5 / 2m	1h 25m E	2"+ /				3.64	F6 V							
	π⁴ Ori	4h 49.6	+5° 33'		0230	0232	100s / 90s	1h 22m E	2" /				3 52	B2 III							
951	π⁶ Ori	4 57.0	+1° 40'	"	0244	0302	18m / ✓	1h E	1.5 /	"	"	"	5.85	K2 II	"	"	"	"	"	✓	
	γ Ori	5 23.5	+6 19		0303	0303	105 / 20s	1h 23m E	" /				1.41	B2 III							
	φ¹ Ori	5 33.2	+9 28		0306	0309	2m5 / ✓	1h 20m E	/				4.24	B0 IV							
	λ Ori	5 33.5	+9 55		0311	0312	1m / 2m	1h 24m E	/				3.22	O8 III							
(40)	φ² Ori	5 35.3	+9 17		0315	0322	6m / ✓	1h 17m E	1.5 / clear				5.03	G8 III b							
	σ Ori AB	5 37.2	−2° 37'		0325	0327	1m / 2m	1h 16m E	1" / "				3.51	O9.5 V							
	σ Ori E	"	"		0330	0335	5m / 15m	1h 5m E	" /				4.5:	B2 Vp							
	δ Ori	5 30.5	−0 19		0337	0338	2m5 / ✓	56m E	/				2.00	O9.5 II							
	ζ Ori	5 39.2	−1 57		0340	0341	15s / 20s	1h 2m E	" /				1.57	O9.5 Ib							
	ι Ori	5 34.0	−5 56		0343	0344	25s / 40s	57m E	" /				2.52	O9 III							
	ε Ori	5 34.7	−1 13		0346	0347	12s / 18s	52m E	" /				1.51	B0 Ia							
	κ Ori	5 46.3	−9 41		0349	0350	18s / 24s	1h E	" /				1.89	B0.5 Ia							
952	42 Ori	5 33.9	−4 51	"	0358	0401	3m / ✓	37m E	" /	"	"	"	4.40	B1 V	"	"	"	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1970	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV	OBS	REMARKS
952	β TAU	5h 24.4	+28° 35'	14/17	0414	0415	16s ✓	13m E	1"/clear	2.86	50µ/1.2	67/4.45	1.52	B7 III	NeA	60s	NeAr	II-O	IIa-J GIaF 15 mm	[illegible]	
(cont'd)	6 X² ORI	6 02.1	+20 08	DEC 1975	0417	0422	4m/2m	44m E	"				4.90	B2 Ia							
	ν ORI	6 02.9	+14 46		0424	0427	3m ✓	43m E	"				4.15	B3 IV							
	α ORI	5 53.5	+07 24		0430	0431	1m ✓	27m E	"				2.28	M2 Iab							
(24")	15 S MON	6 39.3	+09 56		0434	0444	6m 3m 5	1h E	"				4.40	O7							
	13 MON	6 31.3	+07 21		0446	0449	3m ✓	46m E	"				4.50	A0 Ib							
	γ GEM	6 36.0	+16 26		0451	0452	1m 35s / 24s	47m E	1.5" / "				1.93	A0 IV							
	η GEM	E7 16.4	+16 36		0455	0457	1.5m ✓	1h 23m E	"				3.09	A3 V							
	ρ AUR	5 19.5	+41 46		0505	0517	12m 18m	57m W	"				4.91	B5 V							
	19 AUR	5 17.8	+33 55		0520	0522	12m ✓	1h 11m W	"				5.30	A5 II							
953	HR 1763	5 20.4	+08 24	"	0544	0556	12m 10	1h 33m W	1"/clear	"	"	"	5.68	B8.5 V	"	"	"	"	"	"	
	HD 48518	6 17.0	+23 25		0600	0653	53m 75	1h 32m W	"				7.2	B8 II							moon light?
	HD 48434	6 41.9	+3° 58'		0655	0706	11m ✓	1h 20m W	"				5.89	B8 III							
	ω ORION	7 00.4	+24 15		0708	0728	20m ✓	1h 24m W	"				6.09	G5 II							
	ζ PUP	8 02.5	−35 55		0731	0732	16s ✓	26m W	"				1.97	O5f							
	ζ MON	8 27.1	−02 54		0735	0744	8m ✓	33m W	"				5.32	G2 Ib							
	31 MON	8 42.2	−07 07		0746	0757	11m 9	12m W	"				5.46	G0 Ib							
	α HYA	9 26.1	−08 32		0759	0801	1.5m ✓	28m E	"				3.42	K3 II-III							
	γ VIR	12 40.1	−01 17		0806	0808	1.5m 3	3h 34m E	3"/clear				3.10	F0 V							R.A. slewing - stable
	θ LEO	11 12.7	+15 36		0812	0814	1m 1.5	2h 2m E	2"				3.34	A2 V							
	δ LEO	11 12.5	+20 41		0818	0819	40s 80	1h 57m E	2"				2.70	A4 V							
	40 LEO	11 47.5	+14 44		0821	0822	25s 35	2h 19m E	2"				2.23	A3 V							
	40 LEO	10 17.9	+19 39		0828	0836	8m ✓	40m E	1.5"				5.27	F6 IV							
954	ε ERI	03 45.8	−23° 18'	17/18	0246	0251	5m 4m	4m W	1.5"				4.8:	F8 :	"	"	"	"	"	[illegible]	Clouds for last 2 hrs some cirrus
	41 AUR	02 48.2	+27 08	DEC 1975	0255	0259	2.5m ✓	1h 16m W	1.5-2"				3.53	B8 :							
	ε AUR N	02 57.5	+21° 13'		0303	0311	8m 12m	1h 13m W	1.5"				5.3:	A2 V							separation 1.5"
	" S	"	"		0311	0319	8m ✓	1h 21m W	1.5"				5.3:	A2 V							
	+28° 516	03 18.5	+28 56		0323	0343	20m ✓ used 4C to mask	1h 24m W	2"				5.8	K4 III							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA 1970	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
954	2 ORI	04 49.0	+08 51	17/18	0346	0348	2m / 3m	0h0m	1.5 / haze	2.80	50µ/1.2	64 / 4.75	4.32	A0 V	NeII	60s	NONE	II-c	IIIa-J		T=13°C
(cont)	π5 ORI	04 52.7	+02 24	DEC 1975	0354	0356	1.5 / ✓	2m W	"				3.33	B2 III					64°F 15 mm.		
	P ORI	05 11.7	+ 2 50		0359	0421	21m / 18	9m W	2" / hazy, cirrus				5.64	K3							
	25 ORI	05 23.2	+ 1°49		0425	0429	4m / 6	6m W	"				4.73	B1.5 e							
	4 ORI	05 25.2	+ 3 04		0431	0434	3m / 5	8m W	"				4.36	B2 IV							
	32 ORI	05 27.2	+ 5 56		0437	0440	3m / ✓	11m W	"				4.06	B5							
	ω ORI	05 32.6	+ 4 06		0443	0447	4m / 3	9m W	"				4.44	B3 e							
955	μ ORI	05 22.7	+ 9 39		0503	0507	4m (cloud) / 3m	6m W					4.27	Am							
	ε MON A	06 22.2	+ 4 37		0516	0514	4m / ✓	8m E					4.6	A5							
	" B	"	"		0516	0540	24m / 48m	18m W					6.8	F9							
	18 MON	06 46.3	+ 2 27		0543	0544	1m / 10m?	46m W					5.6	K0							
956	ν For	02 03.4	- 29 32	18/19 Dec 1975	0036	0040	5m / 5m	21m E	1.5 / plus?	"	"	"	4.7:	A9	"	"	"	"	"		
	μ And	00 53.1	+ 38 20		0044	0048	3m / 3m	53m W	"				4.08	A5							
	π And	00 35.3	+ 33 53		0051	0156	5m / 4m	1h23m W	"				4.30	B5 IVe							
	σ And	00 16.5	+ 36 32		0159	0208	8m / 8m	1h53m W	"				4.58	A2							
	ε Psc	01 10.0	+ 29 56		0110	0124	18m / 21m	1h21m W	"				4.6	K0							
	q¹ Psc	01 12.1	+ 24 26		0131	0150	18m / 18m	1h41m W	"				5.6	K0							
	ν Psc	01 17.8	+ 27 06		0153	0200	7m / 7m	1h45m W	"				4.67	A2							
	β Cet	01 53.0	+ 20 40		0205	0209	1.5 / 3m	1h44m W	"				2.82	A5							
	ε Psc	01 01.4	+ 7 44		0208	0218	7m / 7m	2h19m W	"				5.24	K0							
	ο Psc	01 43.8	+ 9 00		0221	0233	12m / 12m	1h55m W	"				4.4	G8							
	α Psc	02 00.5	+ 2 37		0236	0245	8m / 8m	1h48m W	"				4.3	Am							Burg: <2" m 1/A. Am ~ 0.5
	ξ¹ Cet	02 26.6	+ 8° 24'		0247	0250	3m / 3m	1h27m W	"				4.22	B9							
957	γ Cet	02 41.7	+ 3 01	"	0300	0302	6.5 / 6m	1h23m W	"	"	"	"	3.51	A2	"	"	"	"	"		
	λ Cet	02 58.1	+ 8 47		0305	0307	3m / 3m	1h18m W	"				4.57	B5							
	ν Tau	04 01.6	+ 5 54		0316	0319	3m / 3m	22m W	"				3.32	A1							
	μ Tau	04 13.4	+ 8 49		0323	0327	4m / 4m	16m W	"				4.23	B3							
	K Tau	04 23.6	+ 22 14		0330	0334	5.5 / 5.5	12m W	2"				4.36	A7							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 70
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	12°C REMARKS
		1970																			
957	68 Tau	04 23.8	+17 52	18/19	0339	0349	10m / 4m		2" clear	2.86	50μ/1.2	67/4.45	4.35	A3	Ned	60'	NONE	IIa-O	M-S 68 F 15 min	[illegible]	VFO failed - tree too low
(cont)	"	"	"	Dec 1970	0350	0357	6m	0h 37m W	"	"			"	"							
	71 Tau	04 24.6	+15 33		0400	0407	7m / 5m	0 45m W	"				4.73	F0							
	ρ Tau	04 32.1	+14 47		0410	0417	6m ✓	48m W	"				4.90	A8							
	90 Tau	04 36.5	+12 27		0420	0425	5m / 4m	51m W	"				4.15	A6							
	2 Ori	04 49.0	+8 51		0428	0432	4m / 3.5	46m W	"				4.32	A0							
	9 Ori	4 54.7	+13 28		0435	0448	12m ✓	56m W					5.3	K2							
958	HR2334	6 25.8	+0 20'	"	0503	0516	13m	7m E	1.5/clear	"	"	"	5.4	K1 II	"	"	"	"	"	[illegible]	
	"	"	"		0518	0525	7m	2m W	"				"	"							
	HD52266	6 58.8	-5 47		0528	0611	43m ✓	15m W	1"/clear				7.22	O9 V							
	σ C Ma	7 00.5	-27 53		0626	0639	12m / +8	42m W	<1"/clear				5.20	K7 Ib							
	HD59612	7 28.4	-22 57		0641	0648	7m / 6	22m W	1.5/"				5.1	A5 Ib							
	HR2974	7 39.6	-31 36		0652	0741	41m / 6	1h 4m W	1"/"				7.2	G0 Ia							
	K Hya	9 38.1	-14 11		0745	0750	5m / 6m	46m E	1.5/"				4.90	B5 V							
	β Sex	10 28.6	-0 27'		0753	0758	5m / 6m	1h 26m E	1.5/"				4.90	B6 V							
	HD92204	10 36.9	-58°32'		0804	0816	12m / 15	1h 18m E	1.5/"				6.01	A2 Ia	[illegible]						
	c' Cen	11 30.5	-59 16		0820	0842	20m / 2	1h 48m E	1.5/" (maybe 1")				6.2	G2 Ia	[illegible]						
	ζ Lu	10 15.3	+23 32		0845	0851	6m / 2	20m E	1.5-2"				3.7	F0 III							
	"	"	"		0851	0854	3m / 1	17m E	"				"	"							
959	π And	00 35.3	+33 33	19/20	0038	0042	4m / 1	1h 11m W	2" clear	"	"	"	4.30	B5	"	"	"	"		[illegible]	T=13°C H=60% wind calm
	α And	00 06.8	+28 55	Dec 1970	0045	0046	12s / 1	1h 43m W	"				1.98	B9 p							
	ε And	00 37.0	+29 08		0048	0058	10m / 1	1h 26m W	"				5.25	G8 III							
	ζ And	00 45.7	+24 06		0101	0129	28m / 2	1h 47m W	1.5/				6.4	K1 II							
	η And	00 55.6	+23 15		0131	0145	14m / 1	1h 54m W	"				5.36	G8							
	β Ari	01 53.0	+20°40'		0147	0148	40s / 1	1h 0 W	"				2.82	A5							
	η Psc	01 29.9	+15 12		0151	0155	4m / 1	1h 29m W	"				4.59	G8							
	γ² Ari N	01 51.9	+19 09		0157	0201	4m / 1	1h 14m W	"				4.8								
	γ' Ari S	"	"		0201	0205	4m / 1	1h 18m W	"				4.8								

NUMBER	OBJECT	R.A. 1970	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
959	δ Psc	00 47.1	+7 25	19/20	0208	0230	22m / ✓	2h48m W	1.5-2"	2.86	56μ/1.2	6.7/4.45	5.94	K5	NeA	60s	NONE	II-O	6+F M-S 15min	[illegible]	
(Cont)	α Psc	02 00.5	02 37	Dec 1975	0235	0238	3.5m / 3	1h43m W	2"				4.3:	Am							
	20 Tau	03 44.0	+24 17		0241	0243	2m / ✓	0h4m W	2"				3.79	B7 III							
	23 Tau	03 44.5	+23 51		0246	0249	3m / ✓	10m W	"				4.10	B6 IVnn							
960	17 Tau	03 43.1	+24 01	"	0303	0305	2m /	27m W	2" / clear	"	"	"	3.58	B6 III	"	"	"	"	"	"	
	19 Tau	03 43.4	+24 22		0308	0311	3m / ✓	33m W	"				4.18	B6 IV							
	η Tau	03 45.7	+24 01		0314	0315	40s / 1.5	34m W	"				2.77	B7 III							
	27 Tau	03 47.4	+23 58		0317	0318	1.5 / ✓	36m W	"				3.54	B8 III							
	28 Tau	03 47.4	+24 02		0320	0326	6m /	44m W	1.5 / clear				5.2:	B8 p							
	γ Tau	04 18.1	+15 33		0328	0332	4m / ✓	18m W	1.2 / "				4.65	K0 III							
	δ Tau	04 21.2	+17 28		0334	0338	4m / ✓	21m W	" / "				4.74	K1 III							
	ε Tau	04 26.9	+19 07		0340	0343	3m / ✓	21m W	" / "				4.56	K[illegible] III							
	θ² Tau	04 26.9	+15 48		0346	0348	1.5 / ✓	26m W	1.5				3.59	A7 III							
	(77) θ¹ Tau	04 26.9	+15 54		0350	0356	5m / ✓	34m W	" / "				4.81	G9 III							
	α Tau	04 34.2	+16 27		0359	0400	50s / ✓	31m W					2.38	K5 III							
	119 Tau	05 30.5	+18 34		0403	0508	65m / ✓	44m W	"				6.7:	M2 Ib							
961	τ Aur	05 47.1	+39 10	"	0518	0538	20m / ✓	55m W	1.5 /	"	"	"	5.47	G8 III	"	"	"	"	"	[illegible]	
	ν Aur	05 49.4	+39 08		0540	0552	12m / 1.5	1h8m W	/ "				5.09	K0							
	232 g. Pup	07 58.5	-18 19		0556	0600	3m / ✓	53m E	1.5 / clear				4.70	A3							
	16 Pup	08 07.7	-19 09		0602	0604	2m /	58m E	" /				4.23	B5							
	19 Pup	08 09.9	-12 50		0608	0616	8m / 1.0	45m E	"				5.44	K0							
	12 Hya	08 45.0	-13 26		0619	0626	6m / ✓	1h14m E	1.5 / clear				5.21	G8							
	39 Hya	09 50.0	-14 42		0629	0634	5m /	2h10m E	" / "				5.04	G8							
	δ Hya	08 36.1	+5° 49'		0642	0644	2.5m /	46m E	"				4.14	A0							
	σ Hya	08 37.2	+3 27		0647	0657	10m / 1.3	35m E	"				5.65	K2							
	ε Hya	08 45.2	+6 32		0658.5	0701	2.5m / ✓	38m E	"				4.07	G0 + F							
	θ Hya	09 12.8	+2 27		0704	0705	1.5m /	1h1m E	"				3.82	B9.5 p							
	ο Leo	09 39.6	+10 02		0709	0711	2.5m / ✓	1h22m E	"				4.00	A2 + F6							

NUMBER	OBJECT	R.A.	DEC	DATE UT	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL	DEV.	OBS	REMARKS
962	32 Hya	09 30.5	-1 03	19/20	0721	726	5m	58m E	1.7-2" clear	2.86	5cm/1.2	4.45	4.67	A3	NeA	60s	None	IIa-O	M-S	[illegible]	
	L Hya	09 38.3	-1 00	Dec 1975	0728	0738	10m	55m E	2"				5.21	K3					67°F / 5min		
[illegible]	ν² Hya	10 03.7	-12 55		0740	0743	3m	1h 15m E	1.5				4.51	B8							
	λ Hya	10 09.1	-12 12		0746	0752	5m	1h 13m E	1.5				4.64	K0							
	μ Hya	10 24.6	-16 41		0754	0812	16m	1h 7m E	2"				3.31	K4							
	ν Hya	10 48.1	-16 02		0814	0821	6m	1h 21m E	2"				4.37	K3							
	α Crt	10 58.3	-18 08		0823	0833	10m	1h 20m E	2"				5.18	K0							T=11°C
	31 Leo	10 06.3	+10 09		0835	0856	21m	0h 5m E	2"				5.6	K4							
	(15) Sex	10 06.4	-0 13		0857	0901	4m	0h 1m W	2"				4.45	A0							
963	η Peg	22 41.6	+30 04	20/21	0038	0053	15m	3h 19m W	3" clear	"	"	"	3.80	G8	"	"	"	"	"	[illegible]	problem w/ general [illegible]
	τ Peg	23 19.1	+23 35	Dec 1975	0055	0104	9m	2h 51m W	2"				4.7	A5							
	α Peg	23 03.3	+15 03		0107	0109	1.2	3h 13m W	1.5 clear				2.47	B9.5							
	70 Peg	23 07.6	+12 36		0112	0125	13m	3h 4m W	2"				5.4	G8							[illegible]
	γ Psc	23 15.6	+3 07		0127	0136	8m	3h 27m W	2.5				4.61	G7							
	ω Psc	23 26.4	+6 13		0138	0151	13m 15	3h 32m W	2"				5.35	K1							
	λ Psc	23 40.5	+1 37		0153	0158	5m	3h 25m W	1.5				4.71	A7							
	ω Psc	23 51.8	+6 42		0201	0205	4m	3h 15m W	2"				4.4	F4							
	π Per	2 56.8	+39 33		0210	0217	7m	27m W					4.6	A2							
	ε ARI-N	2 57.5	+21 13		0220	0233	13m 10m		1.5±2" clear				5.6	A2							
	δ ARI	3 09.9	+19 37		0236	0248	12m	45m W	1.5				5.2	K2							
	+28 516	3 18.5	+28 56		0250	0320	30m	1h 8m W	1.5 clear				5.8	K4							
964	o Per	3 42.4	+32 12	"	0329	0333	3.5	58m W	2" clear	"	"	"	3.88	B1 III	"	"	"	"	"	[illegible]	single trail
	"	"	"		0333	0337	4m	1h 2m W	"				"	"							
	ζ Per	3 52.2	+31 48		0340	0342	2m	58m W	"				2.96	B1 Ib							
	ε Per	3 55.8	+39 56		0345	0348	3m	1h W	3"				2.71	B0.5 IV							
	ξ Per	3 57.0	+35 42		0351	0355	4m	1h 7m W	2"				4.04	G7							
	γ Cri	5 23.5	+6 19		0420	0421	15 15	6m W	1.5				1.41	B2 III							
	β Tau	5 24.4	+28 35		0425	0426	20s	9m W					1.5	B7 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA 1950	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG.	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS.	REMARKS
964	δ Ori	5 30.5	- 0° 19'	20/21	0436	0437	20s / ✓	15m W	1.5" / clear	2.46	5:7 / 1.2	67 / 6.45	2.00	O9.5 II	Ne A	60s	Line	IIa-J	IIa-J	JD	
(cont)	π Ori	5 33.5	+ 9° 55'	DEC 1972	0441	0443	2m / 15	18m W	1.5" / "				3.22	O8 5 II					IIa-J + GG 385 15 mm.		
	ι Ori	5 34.0	- 5 56		0447	0448	40s / "	23m W	1.5 / "				2.82	O9 III							
	ζ Ori	5 39.2	- 1 57		0452	0453	18s / "	22m W	" / "				1.87	O7.5 Ib							
	σ Ori AB	5 37.2	- 2 37		0456	0459	1m / "	31m W	/				3.81	O9.5 V							
965	σ Ori E	"	"	"	0510	0526	15m / "	58m W	"	"	"	"	?	B:V p					"	JD	clear, thin cirrus p
	ε Ori	5 34.7	-01 13		0528	0529	~~4~~ 18s / "	1h 2m W	1.5" / "				1.51	B0 Ia							
	κ Ori	5 46.3	- 9 41		0532	0533	24s / "	55m W	1.5" / clear				1.89	B0.5 Ia							
	μ Eri	4 41.1	- 1 34		0537	0538	1m / "	25m E	2" / clear				4.55	M2 III							
	HD 43818	6 13.2	+23 30		0554	0705	71s / "	1h 56m W	1.5" / clear				7.31	B0 II							
	6 Lep	5 27.2	-13 51		0708	0719	8m / "	1h W	1.5-2" / "				4.48	F0 V							
	HR 2334	6 23.5	+00 20		0723	0744	20m / "	2h 27m W	1.5 / "				3.57	K1 II							
	HR 2974	7 39.6	-31 36		0748	0848	60m / "	2h 18m W	1.5 / "				6.64	G0 Ia							
	α Leo	10 06.8	+12 07		0851	0852	15s / "	0h 6m E	2" / "				1.35	B7 V							
	ζ Leo	10 31.2	+23 28		0856	0859	2m / "	0h 24m E	2" / "				3.71	B1 Ib							
7.6	β Peg	23 02.3	+27°55'	21/22 Dec 1975	0035	0051	16m / "	3h W	2-3" / clear	"	"	"	4.20	M2.5 II III	"	"	"	"	"	JD	T 15.5°C H 31% wind 5 gusts from S
	ν Peg	23 23.9	+23 14		0053	0105	10m / "	2h 55m W	2" / "				4.9	F8 III							
	ζ Peg	22 40.0	+10 40		0107	0113	5m / "	3h 47m W	2" / "				3.32	B8 V							
	ι Peg	23 38.4	+ 5 28		0117	0122	4.3m / "	2h 56m W	1.5 / "				4.64	F7 V							
	λ Aqr	22 51.0	- 7°44'		0131	0202	31m / "	4h 23m W	2" / "				5.38	M2.5 IIIa							
	φ Aqr	23 12.8	- 6 15		0224	0253	29m / "	4h 54m W	2" / "				5.78	M1.5 III							
	ω² Aqr	23 41.2	-14 43		0255	0300	5m / "	4h 34m W	2" / "				4.44	B9.5 V							
	κ Cet	03 12.4	+ 3 17		0304	0314	10m / "	1h 16m W	1.5 / "				5.3	G5 V							
	16 Tau	03 42.8	+24 10		0318	0327	8m / "	57m W	1.5 / "				5.40	B7 IV							
	17 Tau	03 44.2	+24 28		0330	0339	9m / "	1h 6m W	1.5 / "				5.71	B8 V							
	18 Tau	03 43.2	+24 45		0341	0350	9m / "	1h 22m W	" / "				5.72	B9.5 V							
	28 Tau	03 47.4	+24 02		0353	0402	9m / "	1h 30m W					5.2:	B8p shell							

NUMBER	OBJECT	R.A. 1970	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
967	68 Tau	04h 23.8m	+17° 52′	11/22	0430	0434	3m5	25m W	1.5	2.86	50 / 1.2	67 / 4.45	4.35	A3	NeH	60s	NONE	II a C	Hi-3 6.7° F 15 mm		
	ψ Ori	05 25.3	+3 04	Dec 1975	0441	0446	5m	35m W	2"				4.36	B2							
	71 Tau	05 35.9	+21 08		0450	0451	1m	29m W	2"				2.94	B2p shell							
	50 Ori E	05 37.2	-2 37		0455	0515	20m	53m W	1.2				~~3.55~~ 5-6?	B2Vp							
	W Ori	05 37.6	+4 06		0519	0521	3m 5m	58m W	1.5				4.44	B3e							
	136 Tau	05 51.4	+27° 36′		0524	0528	4m 5m	52m W	2"				4.50	A0							
	θ Aur	05 57.7	+37 13		0537	0535	1.5m 1m	52m W	2"				2.58	B9.5p							
	η Gem	06 13.1	+22 31		0546	0553	7m 10	54m W	2"				4.91:	M3							
	ν Gem	06 27.2	+20 14		0556	0559	2.5m	46m W	2"				4.04	B7e							
	18 Mon	06 46.3	+2 27		0603	0614	11m	43m W	1.5				5.59	K0							
	α Gem AB	07 32.7	+31 57		0619	0620	40s 3m	3m W	2"				2.00	A1							
	β Gem	07 43.5	+28 06		0624	0625	45s	4m E	1.5				2.2	K0							close
968	β CMi	07 25.5	+8 21	"	0643	0644	45s	34m W	1.5	"	"	"	2.82	B7V	"	"	"	"	"		
	8 CMi	07 26.5	+8 59		0647	0654	13m	48m W	1.2				5.5	K3							
	α CMi	07 37.7	+5 18		0701	0701	6s	38m W	1.5				0.38	F5							
	27 CMa	07 13.0	-26 18		0705	0707	2m 5s	19m W	1.5				4.30	B3e							
	ρ Pup	08 06.3	-24 13		0711	0712	45s	21m W	1.5				3.22	F6 p							
	8 Pyx	08 49.3	-27 36		0715	0728	8m	7m E	1.5				5.21	K4							
	I Hya	09 39.9	-23° 27′		0730	0734	3m 5s	51m E	1.5				4.59	B2e							
	K Vel	09 14.6	-37° 17′		0743	0744	5m	12m E	1.5				5.08	F5							
	ε Ant	09 28.0	-35 49′		0751	0811	20m	2m E	1.5				5.94	K4							
	α Ant	10 25.8	-30 55		0814	0834	20m	37m E	1.5				5.76	M0							
	L Ant	10 55.3	-36° 59		0837	0847	10m	53m E	1.5				5.61	G5							T=13°C
	ζ Hya	11 31.5	-31 41		0849	0854	5m 4	1h 23m E	1.5				4.50	G7							
	β Hya	11 51.4	-33 44		0856		5m	36m E					4.18	A0p							close by, troublesome
969	ψ² Aqr	23 16.3	-9 21	22/23	0033	0036	2m 1/2m	2h 35m W	1.5				4.24	B5V							T=14°C H=42% Wind Slight
	γ Peg	23 56.2	+24 58	Dec 1975	0041	0158	77m	3h 18m W	2"				4.25	M3 III							
	β Psc	23 02.3	+3° 40′		0201	0209	8m	4 25 W	2"				4.34	B5e							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL CORR	H A END	SEE TRANS	CAM FOCUS	SLIT	GRATING TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	ENVR	DEV	OBS	REMARKS
769	Ψ¹ Aqr	23 14.3	-9° 15'	22/23	0213	0235	2m	5m 35s W	3"	2.82	5mm/1.2	63 1445	5.82	KC	NeA	60s	None	Hg-O	M-1 67°F 15mm	mj	
(Cont)	β PsA	21 27.8	-32 30	Dec 1975	0241	0249	3m	5m 34s W	3"				4.29	AC							
	χ PsA	22 50.9	-33 02		0251	0259	3m	5m 25s W	3"				4.42	AC							
	δ PsA	21 54.3	-32 42		0301	0309	23m	5m 51s W	2.3				5.17	G8							
	ξ² Cet	2 26.6	+8 20		0335	0336	3m	2h 22m W	2°				4.22	B9							
	10 Tau	3 33.3	+0 18		0340	0345	23m	1h 29m W	2°				4.86	F8							Eclipsing binary
	J CMaE	6 57.6	-2 54		0433	0457	24m	3h W	1°				6.14	B0.5p							
	27 CMa	7 15.0	-26 18		0501	0505	22m	32m E	1.5°				4.50	B3							
	δ CMa	7 26.5	+8 57		0508	0534	25m	56m E	3°				1.95	A3							
770	G Car	9 05.1	-12 29		0548	0558	10m	1h 52m E	2° W Clear				5.08	F6							
	κ Vel	9 02.0	-66 17		0601	0604	3m	1h 42m E	1°				2.14	A5							
	i Car	9 10.6	-62 12		0607	0609	2m	1h 44m E	1°				3.77	B3							
	f Car	9 12.9	-69 36		0612	0613	18m	1h 43m E	1°				1.68	A0							
	m Car	9 38.8	-61 12		0618	0620	3m	2h E	1°				4.62	B7							
	l Car	9 44.4	-62 22		0624	0628	4m	1h 59m E	1°				4.60	G2							
	v Car	9 46.4	-64 56		0634	0638	9m	1h 52m E	1°				3.16	A7							
	a Car	9 10.2	-58 51		0641	0643	6m	1h 10m E	1°				3.50	B1							
	g Car	9 15.4	-57 25		0645	0711	26m	49m E	1°				5.97	K5							
	c Car	9 16.3	-59 09		0713	0717	4m	46m E	1°				4.7	F0							
	1 Vel	9 21.2	-54 53		0717	0718	24m	46m E	1.5°				3.68	A2							
	N Vel	9 30.3	-56 54		0720	0727	3m	46m E	1°				4.79	A5							
771	h Car	9 31.6	-59 06	"	0742	0744	2m	34m E	1.2				4.09	B5							
	γ Vel	9 58.8	-54 25		0742	0748	60s	54m E	1.5°				3.44	A3							
	I Car	10 23.8	-73 43		0752	0755	2m	1h 52m E					4.44	A5							
	χ Cha	10 55.1	-78 27		0759	0802	2m	1h 57m E					5.08	F6							
	Γ Cha	10 45.5	-80 23		0805	0808	14m	1h 1m E					4.60	A3							
	ξ Cha	12 16.6	-79 05		0832	0835	17m	2h 27m E	"				4.12	F6							
	γ Mus	12 27.7	-71 58		0838	0840	15m	2h 36m E					3.79	A0							
	δ Mus	13 00.2	-71 23		0843	0849	5m	2h 53m E	2°				4.29	k2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
																					wind < 5 mph 12°C 65%
972	α Gem	22 06.3	-47° 06	23/24	0042	0044	18s / 12s	4h W.	1.5 / clear	2 BC	50μ/1.2	6°/4.45	1.62	B5	NeFe	60s	NONE	IIa-O + 1 mm GRF			please tel 5" comparison - 47 Am = 2.2
	δ Gem	22 27.5	-43 39	Dec 1975	0050	0057	7m / -	3h 56m W	"				4.99	G5							
	Grid AB	21 17.7	-53 35		0101	0105	4m / -	5h 9m W	"				4.57	A4							
	δ Ind	21 55.9	-55 08		0108	0112	4m / -		"				4.68	F0							
	"	"	"		0112	0115	3m / -	4h 39m W	"				"	"							
	ε Ind	22 01.1	-56 55		0117	0123	23m / -		"				5.73	K5 V:							
	"	"	"		0123	0157	13m / -	5h 14m W	"				"	"							
	ε Gru	22 46.8	-51 29		0200	0204	50s / -	4h 40m W	"				3.52	A2							
	ζ Gru	22 59.1	-52 55		0208	0215	7m / -	4h 36m W	"				5.09	G5							
	γ Pav	21 24.0	-65 30		0218	0236	12m / 8	6h 25m W	2" / clear				4.70	F8							
	α Tuc	22 16.5	-60 25		0239	0248	13m / -	5h 53m W	2-3				4.27	K3							
	β Oct	22 43.1	-81 32		0252	0302	9m / -	5h 42m W	"				4.35	A9							
973	45 Rθ Cam	02 54.0	+18 12	"	0335	0505	90m / -	3h 32m W	1.2"	"	"	" V=5.9:		M6III	"	"	"	"	"	"	
	46 Tau	04 11.8	+7 38		0527	0517	10m / -	2h 26m W	1.5				5.8	F3 V							
	HD 23836	06 17.5	+23 21		0525	0553	25m / -	56m W.	<1"				7.0	B9.5 III							
	HR 2334	06 25.5	+0° 20'		0555	0626	31m / -	1h 21m W	1"				5.37	K1 III							
	25 Lyn	06 39.7	+28 13		0629	0711	42m / -	1h 53m W	1"			V=6.39		G5 IIb							
	HD 58134	07 22.0	-24 41		0214	0240	26m / 16	2h 34m W	1"				8.5	G5 IIb							
	31 Mon	08 42.2	-7° 07'		0242	0252	8m / -	1h 29m W	1.5				5.46	G2 IIb							
	γ Hya	08 41.7	+3 30		0252	0255	2m 15s / -	1h 35m W	1.5				4.10	B3 V							
																					12C 47-80%
974	α Tuc	22 16.5	-60 25	24/25	0032	0039	7m / 3		1.5 / clear, fog daughin valley				4.27	K3	"	"	"	"	"	"	Merry Christmas! Happy Newyear!
	"	"	"	Dec 1975	0039	0043	4m / -	3h 53m W	"				"	"							
	ζ Peg	22 40.0	+10 40		0048	0050	1.5m / -	3h 35m W	"				3.32	B8 V							
	ξ Peg	22 45.2	+12 01		0053	0101	8m / -	3h 41m W	"				4.69	F7 V							
	θ Peg	22 08.7	+6 03		0109	0114	5m / -	4h 31m W	2"				3.61	A2							
	π Cyg	22 23.7	+1 13		0116	0127	10m / -	4h 30m W	"				4.62	B1 e							
	α Cyg	22 01.8	+2 18		0130	0142	12m 15s / -	5h 7m W	"				4.70	B8 e							
	χ Cyg	22 20.1	+1 32		0144	0152	8m / -	4h 57m W	"				3.78	B1							
~~974~~	~~ζ Cyg~~	~~22 23.3~~	~~+0 10~~		0154								~~4.8~~	~~F3~~							forgot to put diode slide! 5" comparison = 0

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY 24-INCH

PAGE 2-2

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. ESP. BEGIN	U.T. ESP. END	TOTAL/CORR.	H.A. END	SEE. TRANS.	CASS. FOCUS	SLIT	GRATING	MAG.	SP.	COMP. ENG.	COMP. U.T.					COMMENTS
934	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NeAr	60'	NeAr II	[illegible]	Ar-S 27°F 12mm	[illegible]	
	C Psc A	12 39.0	-27 12	Dec 1985	0218	0222	[illegible]	5h 8m W	[illegible]				4.04	B8e							
	Psc A	22 066	-33 08		0225	2236	[illegible]	5 53 W	[illegible]				[illegible]	A2							
	[illegible] Psc A	22 298	-32 30		0238	0249	[illegible]	5h 42m W	[illegible]				[illegible]	[illegible]							
935	[illegible]	22 063	-47 06		0257	0258	[illegible]	6h 18m W	[illegible]				1.64	B5	"	"	"	"	"	"	
	ζ Gru	22 591	-52 55		0300	0308	[illegible]	5h 35m W	1.5				5.09	G5							
	[illegible]	[illegible]	[illegible]		0312	0315	[illegible]	5h 10m W	[illegible]				4.27	A9							
	HR1279	04h 6m 3	+15° 06'		0325	0332	[illegible]	0h 57m W	1.5				[illegible]	[illegible] dMP							
	HD27353	04 18.6	+16 26		0341	0351	[illegible]	1h 31m W	[illegible]				7.44	F7V							
	HR1351	04 18 5	+13 59		0335	0345	[illegible]	1h 53m W	1.5				5.87	F6 III							
	HD28099	04 24.4	+21 41		0348	0358	[illegible]	[illegible]	[illegible]				7.46	F8V							
	π Ori	05 33.5	+9 55		0621	0623	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	1 Mon	05 33.8	-9 22		0629	0636	[illegible]	[illegible]	[illegible]				6.6	F2 IV							
	HD46150	06 36.6	+4 57		0736	0745	[illegible]	2h 41m W	1.5				6.81	G5							
	ω Cnc	10 16.0	-67 33		0757	0759	[illegible]	0h 45m E	2.5				[illegible]	[illegible]							
	18 Mon	16 36.1	-7 01		0808	0810	[illegible]	0h 33m E	2				4.96	K5 I							
	ω Cnc	10 42.4	-66 25		0819	0859	[illegible]	0h 17m E	2.5				6.28	K5 V							
936	55 Peg	23 03.5	+9° 15'	23/24 Dec 1985	0045	0117	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	θ Psc	23 26.9	6 13		0119	0135	[illegible]	[illegible]	[illegible]				5.53	K1 III							
	θ Aqr	22 01.8	-2 18		0139	0149	[illegible]	[illegible]	[illegible]				4.20	B3pe							
	ε Aqr	22 04.8	-14 01		0151	0202	[illegible]	[illegible]	[illegible]				4.19	G8 Ib							
	δ Aqr	22 53.1	-15 59		0205	0209	[illegible]	[illegible]	[illegible]				3.36	A3							
	"	"	"		0215	0218	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	22 043	-39 41		0215	0205	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	01 08.6	+8 31		0249	0256	[illegible]	[illegible]	[illegible]				6:	G0 III							
	[illegible]	[illegible]	[illegible]		0310	0315	[illegible]	[illegible]	[illegible]				5.50	G5							
	HR1279	04 6.3	+15 06		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				5.61	F3 V							
	HR1351	04 18.5	+13 59		0420	0426	[illegible]	[illegible]	[illegible]				5.87	F6 III							
	HD28099	04 24.4	+21 41		[illegible]	0439	[illegible]	[illegible]	[illegible]				5.22	G1 V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
																					wind calm 11°C 68% H
477	σ Hya	8h 37.2	+3° 27	25/26 Dec 1975	0623	0637	14m ✓	31m E	4.5" clear	2.86	50μ/1.2	67/4.45	5.65	K2	NeA	60s	NONE	IIa-O	IIIa-J 670μ 15mm	✓	
	ζ Hya	7 12.8	+2 27		0639	0641	1.5	4m E	"				3.82	B9.5p							
	β Crt	9 12.9	-17 36		0650	0650	9s 15s	54m E	1.5 / "				1.68	A0							
	χ Crt	9 44.4	-62 22		0655	0701	6m ✓	1h16m E	1"				4.60	cG2							
	υ Crt	9 46.4	-64 56		0704	0705	60s ✓	1h13m E	1.5				3.3	A9							
	ι Crt	9 16.3	-54 19		0708	0710	30s ✓	38m E	"				2.42	F0							
	κ Vel	9 21.2	-54 53		0713	0714	"	40m E					2.30	B2							
	φ Vel	9 55.8	-54 25		0718	0719	90s ✓	1h9m E	1.5				3.44	B5							
	ε Vel	9 03.1	-46 59		0723	0729	6m ✓	6m E	1.5				4.93	K2							
	λ Vel	9 06.9	-43 19		0731	0734	3m ✓	5m E	"				3.88	K5 I							
	ψ Vel	9 29.5	-40 20		0737	0739	2m ✓	22m E	1.5				3.94	F2							
	μ Vel	9 35.8	-49 13		0742	0747	3m ✓	20m E	"				4.51	A5							
478	m Vel	9 50.5	-46 24	"	0754	0808	14m ✓	13m E	2"	"	"	"	5.77	G4	"	"	"	"	"	✓	
	ρ Pup	8 06.3	-24 13		0811	0813	70s ✓	1h36m W	1.5				3.22	F6							
	γ Pyx	8 49.3	-27 36		0816	0825	9m ✓	1h6m W	"				5.29	K4							
	I Hya	8 39.9	-33 27		0827	0832	5m ✓	21m W	"				4.59	B2pe							
	19 Pup	8 09.9	-12 50		0834	0847	13m ✓	2h7m W	1.5				5.66	K0							
	39 Hya	9 50.0	-14 42		0849	0857	8m ✓	36m W	"				5.04	G8							
	* 15 Sex	10 06.4	-0 13		0900	0903	3m ✓	25m W	"				4.45	A0							
																					Scattered wind, night 7 now!
474	β Col	05 50.1	-35 47	JAN 17 1976	0327	0332	5m 30s 60s / 30	0h 42m W	1.5" see cloud	3.40	50μ/1.2	112/7.0	4.3	K0	NeA	60s		IIaO	IIIa-J 670μ 15m	Gve	
	γ Col	05 56.7	-35 17		0341	0344	13m 27m 54m / 60	0h 47m W					4.17	B3							
	κ Col	06 15.7	-35 08		0353	0359	35m 74m 140m / 160	0h 43m W				5.36	~~4.76~~	K0							
480	27 CMa	07 13.2	-26 19		0458	0502	5m 30s 60s / 30	0h 48m W	1-2" clear				4.3	B3IIIpe							
	ω CMa	07 13.4	-26 44		0506	0509	4m 18m 30 / 30	0h 55m W					3.66	B3IVe							
	ν Pup	07 17.4	-36 41		0518	0524	20m 40m 80 / 50	1h 05m W					4.62	B3Vc							
481	HR 2790	07 17.7	-36 41		0536	0542	28m 56m 112 / 60	1h 23m W	1½"				4.93	B3V							
	η CMa	07 23.1	-29 15		0548	0549	4m 8m 14 / 10	1h 25m W					2.33	B5Ia							
	ρ Pup	07 34.4	-28 19		0555	0601	20m 44m 84 / 80	1h 36m W					4.51	B8							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
982	h^2 Pup	08 13.2	-40 16	JAN 17 1976	06 16	06 24	44,48,180^s/200	1^h 10W	1.5"/clear	340	50μ/1.2	112/2.0	5.59	gK0	NeA	60^s	None	IIa-O	M-S 67°F 15min	Grec	
	η Pup	08 17.6	-36 35		06 28	06 33	25,30,100/40	1^h 15W					4.66	A7 III							
	ϵ Vel	08 36.8	-42 54		06 43	06 48	45,60/	1^h 12W					4.23	A9 II							
	β Pyx	08 39.1	-35 13		06 54	06 59	30,60,120/120	1^h 19W					4.84	G4 III							
983	53 G. Vel	08 39.8	-46 34		07 09	07 14	24,48,96/80	1^h 34W					4.60	F2 Ia	NeA	60^s	—				
	d Vel	08 43.5	-42 33		07 20	07 26	30,60,120/	1^h 42W					4.92	sgG5							
	91 G Vel	08 59.2	-41 09		07 32	07 38	35,70,140/140	1^h 38W			70μ/1.2		5.09	F8 III							
984	HR* 2135	06 02.5	+20 08	JAN 17/18 1976	02 30	02 32	28^s/	0^h 28E	1.5"/cirrus	345	70μ/1.2	112/4.24	(6.28)	B2 Ia				IIa-O	M-S 67° 15min	Jn/Enc	-5
	HR* 2653	07 01.9	-23 47		02 46	02 49	160^s/faint	1^h 03E					2.96	B3 Ia						5" screen	-3
	HR* 3494	08 45.7	-45 50		02 54	03 00	22^s/	2^h 02E					5.71	B4 Ia						ND blue filter over-lapping order	-1
	HR* 2827	07 23.1	-19 15		03 10	03 12	100^s/faint	1^h 08E					2.34	B5 Ia							ND +1
	HR* 3456	08 41.2	-45 19		03 17	—	45^s/	2^h 21E					5.02	B6 Ia	NeA	1^s					Set stopped on trails/ft 3
985	HR* 2135	06 02.5	+20 08		05 12	05 13	25^s/	2^h 13W				112/2.0	(6.28)	B2 Ia							blue filter -5
	HR* 2653	07 01.9	-23 47		05 20	05 22	2^m/	1^h 24W					2.96	B3 Ia						ND decker	added -3
	"	"	"		05 28		20^s/						"	"							-1
	HR* 2653				05 33	05 38	360^s/														+1
	HR* 3494	08 45.7	-45 49			05 48	22^s/	0^h 06W					5.71	B4 Ia	NeA	4^s					+3
986	HR 3940	09 56.0	-54 28		06 59	07 16	10^m/ ✓		2^m/thins cirrus				3.4	B5 Ib						dark slide wide close. Plate removed	ND -5
	5358	14 18.5	-56 17		07 28	—	5^s/12^s	3^h 48E					4.32	B8 Ib							-3
	3688	09 15.2	-44 48		07 41	07 42	34^s/45^s	1^h 30W					6.32	A1 Ib							-1
	5374	14 23.0	-68 05		07 51	07 52	30^s/45^s	3^h 27E					6.04	A3 Ib							-1
	6081	16 19.1	-24 07		07 54	—	25^s/35^s	5^h 16E					5.35	A5 II	NeA	4^s					+3
987	5680	15 16.8	-60 24		08 20	—	20^s/50^s	3^h 53E	2"				5.50	O7 I							-5
	6164	16 34.6	-42 48		08 26	08 27	24^s/60^s	5^h 02E					5.58	O9 Ia							-3
	6155	16 32.3	-44 00		08 36	—	15^s/30^s	4^h 54E					4.98	B0 Ia							-1
	6214	16 45.2	-58 17		08 43		12^s/30^s	4^h 57E					4.48	B0.5 Ib							+1
	4860	12 47.1	-27 27		08 54	08 54	60^s/ X	0^h 50E					6.62	B1 Ia	NeA	4^s				Wrong star	+3

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
988I	Buckham 15 # 5	07 38.3 ~~07 40.3~~	-32 29 ~~-32 35~~	JAN 18/19 1976	01 14	01 37	40m ✓	[illegible]	2h/clear	345	70m/1.2	112/70	[illegible]	[illegible]				IIa-D	M-S	Jn/Gve	-5
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	38m	[illegible]					10.8	Oe					67° F		
	# [illegible]	[illegible]	[illegible]		[illegible]	[illegible]	40m	[illegible] E					[illegible]	[illegible]					15 min		
	# 36	07 41.4	-34 43		04 12	05 12	60m/80m	0h 37 W					11.0	O[illegible]							
	# 37	07 40.6	-34 45		05 15	06 00	45m/50m	1h 26 W					[illegible]	[illegible]	[illegible]	[illegible]					
989I	HR 3525	08 49.3	-41 58		06 26	—	45s ✓	0h 42 W	?				[illegible]	[illegible]							out of focus
	HR 1931	05 37.2	-02 38		06 39	06 40	52s ✓						[illegible]	[illegible]							
		"	"		06 44	06 51	7m/20m	4h 20 W													
	HR 1855	05 30.7	-07 20		06 57		18s ✓	4h 34 W					[illegible]	[illegible]							
	HR 1892	05 34.1	-04 51		07 02	—	18s/22s						[illegible]	[illegible]	[illegible]	[illegible]					
[illegible] I					[illegible]		[illegible]	[illegible]													out of focus
	3206	08 08.7	-47 16		07 25	—	12s	2h 23 W					[illegible]	[illegible]							
	3457	08 41.1	-54 40		07 32		12s	2h 00 W					[illegible]	[illegible]							plate not advanced somewhere
	3944	09 55.7	-71 16		07 40	07 42	2m	0h 47 W					[illegible]	[illegible]							
	4806	12 37.4	-67 03		07 49	07 51	2m	1h 39 E					[illegible]	[illegible]	[illegible]	[illegible]					
991I	S287 #3	06h 58.2	-04 46	JAN 21/22	01 02	01 37	35m/45	2h 04 E	1.5h/clear				10.65				NONE	IIa-D	M-S	Gve	-5
	#11	06 57.2	-04 41	1976	01 45	01 53	9m/20	2h 14 E					9.2								
	NGC 2414 S #424	07 26.8	-15 20		02 10	02 28	~~28~~ 18m/25						9.99	O8 I							
992I	# 404	07 26.0	-15 56		03 56								12.35	[illegible]							Wrong star!!
	"	"	"		04 22	06 37	135m/✓						12.35	B1 III							Pinked plate
	# 470	07 29.9	-15 12		07 01	07 11	70m/85	4h W					11.71								
993I	# 460	07 29.2	-15 44	JAN 22/23	01 05	01 55	55m/✓	2h 12 E	1.5/clear				11.11	G2 I							
	430	07 27.4	-15 04	1976	02 45	05 00	135m/✓	0h 55 W					12.07	B1 III	NeA	4s					
994I	453	07 28.9	-14 56		05 22	06 12	50m/✓						11.20	B0 I							
	464	07 29.5	-14 56		06 16	07 05	49m/✓	1 58 W					11.05	O8 I							
	531	07 32.6	-15 46		07 13	08 30	72m/85	4h 20 W					11.37	B2 III	NeA	4s					
995I	HD 67594				0841	0844	2m 40s/18s						53	G2 Ib							wrong exposure
	~~HD 6[illegible]~~	~~08 56~~																			
	HD 8444	9 44.4	+23 53		08 56	09 05	8m 30s/11m	3h 29					76	G0 II							ND 5 way.
	111812	12 50.5	+27 40		0910	0911	18s/21s	18m E					38	G0 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. (B)	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
995I cont	HD 12[illegible]90	13 53 5	+13 [illegible] 12.5	Jan 22/23	09 17	09 24	4[illegible]25 / 9[illegible]	1 10 E	1.5 / clear	345	2[illegible] / 1.2	11[illegible] / 4.0	3362 II					IIa D	MIS 15 min cut 67 mp	Gue	ND 5 mag. Trail of ?
996	S267 #1	06h 14.4	14° 17	JAN 23/24 1976	00 58	01 21	22m / 35s	1h 28 E	1.5 / clear				10 25								
	#2	06h 14.3	14° 17		01 25	04:30	185m / 365s	1h 40 W					12.58		NeA	4s				Gue	
997	S287 #11	06 57.1	-04° 42		05 00	05 17	17m / 17s	2h 00 W					? 9.5								close pair northern
	LS 561 (S307 #1)	07 31.1	-18 45		05 27	06 09	42m / ✓	2h 02 W					11.04								
	LS 566 (S307 #2)	07 34.4	-18 46		06 14	07 49	95m / 1.5	3h 42 W					11.88								
	LS 499	07 31.0	-19 23		07 55	08 50	55m / 15s	4h 45 W	2" / clear				11.05		NeA	4s					
998	HR 2135	06 02.5	+20 08	JAN 24/25 1976	00 43	00 44	90s / 45s	1h 49 E	3-4" / clear				6.3	B2 Ia							
	HR 2653	07 01.4	-23 48			00 56	30s / 18s	2h 35 E					3.0	B3 Ia							out of focus, magn
	HR 3494	08 45.7	-45 49			01 05	30s / 40s	4h 10 E					5.7	B4 Ia							
	HR 2827	07 23.1	-29 15		01 12	01 14	2m / 4m	2h 23 E	2" / clear				2.4	B5 Ia							5m screen
	HR 3456	08 41.2	-45 14			01 20	15s / 11s						5.0	B6 Ia	NeA	4s					
999	LS 489	07 30.4	-15 15		02 18	03 53 ~~02 18~~	100m / 105	0h 02 E	1.5 / clear				11.88	A7 I							
	LS 505	07 31.3	-15 28		04 07	06 07	120m / ✓	2h 06 W					12.03	B0 II							
1000	LS 531	07 32.4	-15 46		06 28	07 38	70m / 75m	3h 42 W					11.37		NeA	4s					
1001	S301 #1	07 08.8	-18 28	JAN 25/26 1976	00 48	01 58	70m /	1h 37 E	2" / clear				11.24	O6							
	#3	07 08.8	-18 24		02 09	03 59	110m /	0h 24 W					11.74								
1002	LS 458	07 28.9	-19 06		04 57	07 12	135m / ✓	3h 18 W					11.94								ff. not crossed field
	LS 113 [illegible]				07 45	09:02	77 / (?)								NeA	4s					
1003	LS 480	07 30.1	-15 27	JAN 26/27 1976	00 53	03 23	150m /	0h 31 E	2" / clear				12.03	B0	NeA	4s					guiding false start
1004	LS 427	07 27.2	-15 21		04 10	06 10	120m / ✓	2h 19 W	1½" / clear				12.03								
	LS 1135	08 43.3	-46 03		06 22	07 47	85m / ✓	2h 42 W					11.28								
	ANON LS 1366 #1	04 52.6	-54 54		07 54	07 09	75m / ✓	2h 56 W	~2"				10.42	K2 Ib	NeA	4s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1005	LS 87	06 45.5	-07 22	JAN 27/28	01 01	02 33	75m/85	0h 30 E	2"/clear	345	704/1.2	112/20	11.2	F I II			NONE	IIa-D	M-S	Gve	
	LS 86	06 45.4	-07 28	1976	02 37	04 04	93m/ v	~1h W					11.4	OB-							
	LS 1137	08 43.4	-45 54		04 24	06 24	120m/ v	1h 20W					11.87		XIeA	4s					
1006	LS 1146	08 44.3	-46 01		04 43	06 04	141m/	4h 02W					12.07		NeA	4s					
~~1007~~	~~LS 540~~	~~07 33.2~~	~~-14 50~~	JAN	02 04				2-3"/clear				12.16	BO							
1007	LS 540	07 33.2	-14 50	23/24 1976	03 55	06 25	152m/	2h 39 W	2-3"				12.16	Bo							
	LS 1132	08 42.8	-45 44		06 31	07 43	72m/	2h 49W					12.42	BO	NeA	4s					clouds!
1008	5298 #0	07 17.4	-13° 10	JAN 29/30	01 09	02 49	100m/	0h 45 E	1½-2"/clear(?)				11.69								
	#2	07 17.8	-13 14	1976	02 54	04 05	71m/	0h 39 W					11.04		NeA	4s					
1009	LS 478	07 30.0	-15° 22		04 29	06 29	120m/ ✓	2h 50 W					11.94								
	LS 1144	08 43.7	-45 48		06 38	08 41	123m/ ✓	3h 40 W					11.91	BO							
	LS 3722	16 42.4	-47 22		08 51	09 05	14½/	3 56 E					9.4	OB	NeA	4s					
1010	5254 #1			JAN	00 52				1½/clear				11.81								tried guiding in dec. but too hard!
	5284 #15	06 43.7	+00 18	30/31 1976	01 05	03 47	162m/250s	0h 57W					12.21								
	#17	06 43.8	+00 18		03 49	05 57	128/250s	3h 18 W					12.07		NeA	4s					
1011	LS 1131	08 42.8	-45 59		06 54	08 34	100/115m	3h 27 W					11.31		NeA	4s					
1012	~~LS 5298 #2~~ LS ~~#1~~	07 17.7	-13 11	JAN 31/FEB	00 48	02 42	85m/ ✓	1h 08 E	1.5"/clear				11.04					UNBAKED			
	~~LS 71~~	10 47	-32 54	1 1976	02 17	03 02	55m/ ✓	0h 40 E					10.5	O7							
	LS 525	07 38.2	-33 24		03 14	04 24	70m/ ✓	0h 52 W					10.7	B V	NeA	4s					
1013	~~HR 3196~~ 1713					04 43	34s/50s	3h 29 W					0.05	B8 Ia							
	HR 3704					04 51	23s/40s	0h 27 E					5.47	B6 Ia							
	HR 4147					04 58	52s/ ✓	1h 36 E					6.51	B7 Ia							
	HR 4252					05 05	20s/ ✓	1h 48 E					5.40	B9 Ia							
	HR 4442					05 08	30s/ ✓						5.63	A3 Ia	NeA	4s					
~~1014~~	~~LS 1147~~	~~08 44.1~~	~~-45 47~~		06 08	08 53	165/ —	4h 12 W					12.11		NeA	4s		BAKED	one beam below	out of focus	
1014	5298 #0	07 17.4	-13 10	Feb 1/2 1976	00 46	02 [illegible]	[illegible]m/	[illegible] E	[illegible]				11.69								
	LS 568 (B-15/9)	07 34.3	-32 30		02 18	04 38	130m/ ✓	0h 57 W					11.09	O							
	B-15 #19	07 36.6	-33 13		04 34	05 44	70m/ ✓	2h 10 W					11.2	OB	NeA	4s					

NUMBER	OBJECT	R A	DEC	DATE UT.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1015	HS 18/19 5003	07 52.1	-26 29	Feb 1/2 1976	06 35	08 10	95m/	~4h W	1½/clear	345	70μ/1.2	11²/7.0	11.27	B5I			NONE	IIa-D	M-S	Gve	
	LS 3721	16 42.3	-47 16		08 20	09 10	50m/	3h 29E					10.4	OB⁻	[illegible]	[illegible]		[illegible]	15 min at 67°F		
1016	LS 527	[illegible]	[illegible]	Feb	00 44	03 24	160m/190	0h 02E	1½/clear				12.14								
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]					
1017	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							[illegible]
	[illegible]	13 31.2	[illegible]		[illegible]	08 16	60m/	1h 09E					[illegible]								
	S 2554	14h 34.5	-60 07		08 22	09 17	55m/	0h 50E					10.9		NeA	4s					[illegible]
1018	[illegible]	[illegible]	[illegible]	Feb	[illegible]	[illegible]	[illegible]/180m	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]	3/4	[illegible]	[illegible]	[illegible]/250m	[illegible]					[illegible]		[illegible]	[illegible]					
1019	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]/180m	[illegible]					[illegible]								
	S 2547	14 34.2	-60 42		09 00	09 16	16m/22m	0h 09E					9.45		[illegible]	[illegible]		[illegible]			
1020	LS 1116	[illegible]	-44 58	Feb	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	345	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]		[illegible]	[illegible]
	LS 1126	[illegible] 41.1	-47 35	10/11	0113	0119	6/	[illegible]					9.2	OB⁺							[illegible]
	"	"	"	1976	0124	0136	[illegible]	[illegible]					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]			[illegible]		[illegible]	[illegible]							
		8 46.2	-43 59		0204	0208	[illegible]	[illegible]			70[illegible]				[illegible]	4s					
[illegible]	[illegible]	08 39.9	-44 58		0349	0353	[illegible]	0h 10m E	[illegible]				[illegible]	[illegible]							
	LS 1126	08 41.1	-47 35		0422	0434	[illegible]	0 33W					[illegible]	[illegible]							
	LS 1154	08 41.2	-43 59		0441	0445	[illegible]	0 37W					[illegible]	[illegible]							
	LS 1108	08 37.6	-44 57		0505	0545	40m/	1 45W					10.7	OB⁺							
	~~LS 1152~~	~~8 38.3~~	~~-46 07~~				~~[illegible]~~						~~9.6~~	~~OB⁺h~~							confused field
	LS 1152	8 45.7	-45 19		0558	0623	[illegible]	2 17W	[illegible]				9.9	OB	NeA	4s					some clouds
~~1022~~	~~LS 1300~~	~~9 24.4~~	~~-52 35~~										~~11.8~~	~~OB⁺h~~							too cloudy
1022	LS 1310	9 26.6	-53 15		[illegible]	[illegible]	[illegible]	43 [illegible]	cloudy				10.8	B6I	[illegible]	4s					[illegible]
1023	LS 1157	8 46.6	-46 21	Feb 11/12	0110	0114	3m 40s/	2 50E	2"/clear	365			7.8	OB⁺							[illegible]
	LS 1117	8 40.0	-46 00	76	0125	0206	44m/	1 52E	[illegible]				10.2	OB⁺h	NeA	4s					
~~1024~~	~~LS 1117~~	~~8 40.0~~	~~-46 00~~		~~0235~~	~~0300~~				~~342~~			~~10.2~~	~~OB⁺h~~							plate fell
~~1024~~	~~LS 1117~~	~~8 40.0~~	~~-46 00~~		~~0330~~					~~342~~			~~10.2~~	~~OB⁺h~~							plate fell
1024	LS 1117	8 40.0	-46 00		[illegible]	[illegible]	[illegible]	2 10W	1-1½"/clear	342			10.2	OB⁺h							
	LS 1117	[illegible]	-46 21		[illegible]	[illegible]	[illegible]	2 22W					7.8	OB⁺							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1024	LS1224	8 59.4	-48 55	Feb 11-12	641	940	[illegible]/160		1-1½"	342	70μ/12	112/7.0	11.4	OB+				IIa D	M-51	Jn	
	LS1338	9 40.7	-48 29	1976	854	922	28/ ✓	W424	1½" clouds	"	"	"	9.2	OB	NeA	4s			[illegible] 67°F		
1025	LS1163	8 47.8	-47 41	Feb 12	030	045	15m/14m	E317	2-3" clouds	342	70μ/12	112/7.0	8.6	A7Ib						Jn	
	LS1165	8 47.9	-47 40	13	053	100	7m/	E302	2"				8.1	OB+							
	LS1167	8 48.6	-47 23	1976	109	117	6m30/	E245	2"				8.2	OB+h							clouds
	LS1172	8 49.2	-44 29		126	322	50m/	E041	1½"				10.1	OB+r							[illegible]
	LS1177	8 49.4	-45 26		333	348	15m/	W015	1½" clear				9.3	OB	NeA	4s					
1026	LS1173	8 49.1	-47 58		413	440	27m/	W040	1½"				9.9	OBh							
	LS1159	8 47.0	-43 52		450	543	53m/	W144	1" some clouds				10.7	OB							
	LS1180	8 49.7	-45 27		552	616	24m/	W213	1-1½"				9.8	OB+le,h							
	LS1183	8 50.0	-43 44		625	712	47m/	W310	1½"				10.4	OB							
	LS1197	8 52.5	-45 56		723	802	39m/	W400	2"-3"				9.7	OB	NeA	4s					
1027	LS1204	8 54.3	-47 30		915	928	13m/	W526	2"				8.6	OB+	NeA	4s				Jn	
1028	LS1179	8 49.6	-46 29	Feb 13	054	228	94m ✓	E130	[illegible]				10.7	A1Ia·h							[illegible]
	LS1160	8 47.3	-44 47	1976	236	357	81m/[illegible]	[illegible]	[illegible]				[illegible]	OB+							[illegible]
	[illegible]	8 50.0	-46 32		728	811	4[illegible]/ ✓	[illegible]	[illegible]				[illegible]	A1 I							
1029	[illegible]1328	9 [illegible]5.6	-52 42		831	904	33m/ ✓	W420	15[illegible]				[illegible]	A2 I							[illegible]
	[illegible]	9 [illegible].1	-53 31		912	921	9m/ ✓	W439	1½"				8.[illegible]	OB[illegible]							[illegible]
1030	HR1713	5 [illegible]	-2 [illegible]	[illegible]	0043	0051	12,24,48/48	0[illegible]36W	2"/ph				0.[illegible]	[illegible]							[illegible]
	HR[illegible]	9 [illegible]	-5[illegible]	[illegible]	0101	0108	18,36,72/72	[illegible]	1½				5.9	[illegible]	NeA	4s					
1031	HR1931	5 37.5	-2 36.5		0132	0137	5m/	054E					3.5	09 I							[illegible]
	HR1931	"	"		0141	0143	4s 8/4s	100E					3.5	"							
	HR2135	6 2[illegible]	+20 08		0151	0200	[illegible]	056W					6.3		NeA	4s					all overexposed
1032	HR1790	05 23.8	+06 21		217	222	[illegible] ✓	[illegible]W	[illegible]				1.64	B2 III							[illegible]
	[illegible]	9 10.7	-[illegible]		232	247	14m/16m	130E					[illegible]	B1 III							[illegible]
	HR3560	8 53.2	-60 15		253	255	30s/24s	10[illegible]E					5.7	B5 III							
	HR3001	7 42.9	-38 09		302	304	57m/50s	016W					6.4	B7 III							
	HR4037	1013.2	-69 54		[illegible]	322	[illegible] ✓						3.2	[illegible] III	[illegible]	[illegible]					[illegible]

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1033	HR [illegible]	[illegible]	-5 56	[illegible]	357	422	3m 6m 12/8m	343W	1½" ph	342	70μ 112	112/70	2.5	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]
	HR 4806	12 37 4	-67 04	[illegible]	435	445	[illegible]	300E					6.3	B1 Ia	NeA	4s		[illegible]	[illegible]		
1034	HR 46[illegible]	12 10 3	-52 14		507	522	14m/	151E	[illegible]				3.8	B3 V					[illegible]		[illegible]
	HR 3440	8 39 2	-52 58		[illegible]	[illegible]	[illegible]						5.0	B4 IV							
	HR 3663	9 10 7	-62 13		539	553	14m/	137W					3.8	B3 III							[illegible]
	HR 2653	7 1.9	-23 48		600	610	10m/	403W					3.0	B3 Ia							
	HR 3494	8 45.7	-45 50		616	617	30s/	221W					5.7	B4 Ia	NeA	4s					
1035	HR 3165	8 27	-39 56		648	654	20s/	313W	1"				2.0	O5 f							
	HR 2781	7 17.6	-24 31		701	702	22s/	437W					4.8	O7 f							
	HR 6245	16 49 8	-41 12		722	724	42s/15s	430E					5.6	[illegible]							
	HR 6[illegible]2	16 53 2	-41 07		732	735	56s/	424E					5.0	[illegible]							
	HR 4830	12 41 4	-12 55		742	743	30s/	000W					5.7	B2 pe							
1036	HR 5953	15 58 8	-22 33		809	812	3m/	251E	1"				2.2	B0 5 IV							[illegible]
	HR 3206	8 27	-47 16		827 / 827	828 / 829	10s / 10s /	515W					4.0	B1 IV							
	HR 5948	15 58 5	-[illegible] 20		835	843	2m/10m	[illegible]E					3.2	B2 5 IV							
	HR 3016	7 44 2	-37 50		854	857	3m/2m	610W					6.4	B3 IV							[illegible]
	HR 3442	8 39 2	-52 58		902	903	36s/20s	522W					5.0	B4 IV							
1037	HR 6672	17 51 4	-24 53		926	933	28s 50s / 58s 12/	323E					6.2	[illegible]							
	HR 5358	14 18 5	-56 17		939	943	5s / 10s 20s	018W					4.3	B6 Ib	NeA	4s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL/CORR	H.A. END	SEE./TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1038	λ Ori	5 33.8	+9 55	FEB.17 1976	00:20	00:25	5, 10, 15	0h 01m E	1"/phot	344	50μ/0.6	120/7.0	AB 3.20	O8 III((f))	Neon	30s	—	IIa-O	15m wide slit	Tmr	
	μ Col	5 45.1	-32 19		00 31	00:35	20, 30, 40m	0h 09 E					4.87	09.5 IV							
	15 Mon	6 39.6	+9 54		00 42	00 43	35, 50, 25m	0h 45E					4.40	07 V((f))							
	7 CMa	7 19.9	-24 54		00 47	00 50	30, 60, 90m	1h 25E					4.25	09 Ib							
1039	HR 2467	6 40.7	+06 22	"	01 06	01 17	2, 4, 6m	0 23 E	"	"	"	"	6.31	O7 V	"	"	—	"	"	11/6m	HD 45910
	HD 46150	06 30.5	+64 58		01 27	01 46	3, 6, 9m	0 17 W					6.8	05 V((f))							
	HD 46149	06 30.5	+05 03		01 53	02 37	7, 14, 21m	1 08 W					7.7	08.5 V							
	ξ Pup	08 02.7	-34 56		02 42	02 43	23, 45s	0h 19W					1.99	O4 I(n)f							
1040	HD 74676	08 43.0	-41 08	"	03 01	04 06	65m	0h 24W	"	"	"	"	8.28 8.7	B9	"	"	—	"	"	Tmr/Cmr	
	HD 74419	08 41.6	-40 57		04 09	05 25	96m	1h 44 W					9.4	A							
	HD 74355	08 41.1	-40 39		05 38	06 03	25m	2 24W					3.9	B8							
	HD 92504	10 38.7	-57 21		06 22	06 50	28m	1 13W					8.37	O8							
	HD 90615	10 25.3	-57 12		06 54	07 24	30m	2h 01W					8.46	B0 II							
	CPD61°3566	13 16.5	-62 18		07 34	09 34	120m	1h 20W					9.52	B2	"	"					
1041	HD 75081	08 46.7	-40 59	Feb 18 1976	00 12	00 18	6m	3h 22 E	1-1.5"/pk		1.5		6.3	A2	Neon	60s	—	"	"	"	
	HD 75224	08 46.6	-41 04		00 21	00 39	18m	3h 02 E			"		7.5	A2							
	HD 74979	08 44.8	-40 15		00 44	01 06	20m	2h 33 E			"		7.6	B8							
	HD 74804	08 43.6	-41 11		01 08	01 29	21m	2h 10 E			"		7.7	B5							
	Cr 137-#32	08 44.1	-41 07		01 32	04 33	181m	0 55 W			0.6		10.0	—							
	SLS 1516	10 21.3	-57 21		04 45	06 33	108m	1h 18 W					9.5	O8							(underexposed) blue half of slit tmr - comp
	SLS 1536	10 23.3	-57 56		06 36	09 40	184m	4 23 W					10.0	O8							
1042	HD 74867	08 44.1	-41 25	FEB. 19 1976	00:13	00:48	35m	2h 47m E	1½"	344	50μ/.6	120/7.0	8.0	B9	Neon	60s	—	IIa-O	15m wide slit	Tmr	
	HD 74883	08 44.2	-41 20		00:53	01:32	39m	2 05 E					8.3	B9							
	HD 74951	08 44.6	-41 24		01:35	02:49	74m	0 42 E					9.1	A0							
	HD 74634	08 42.6	-41 26		02:54	04:16	80m	0 43W					9.2	A0							
	HD 74990	08 43.6	-41 37		04:19	05:02	43m	1 27 W					8.5	A0							in sparse cluster identification?
	SLS 1516	10 21.3	-57 21		05:06	08:15	189m	3 04 W					9.5?	O8							
	HD 90273	10 22.8	-57 31		08:16	09:54	98m	4 41 W					9.24	O7							SLS 1529

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1043	CPD -32° 1661	7h 38m.5	-32° 27'	FEB. 20 1976	00:02	03:13	191m/✓	0h 48m W	1"/phot.	344	50μ/1.6	120/7.0	10.15	OB	NeA	60s	—	IIa-O	15m metol sulfite	Tnr	
	HD 61851	7 39.0	-31 28		03:17	04:28	71m/✓	2 02 W					9.07	B6 5 I							CPD-31° 1757
	SLS 1543	10 24.2	-56 56		04:47	06:05	78m/over	0 57 W					9.2	F8 I							identification? very faint companion
	SLS 1546	10 24.5	-57 26		06:15	08:18	123m/✓	3 08 W					9.6	F8 Ib-II							
	SLS 1716	10 38.0	-57 39		08:21	09:38	77m/✓	4 14 W					8.9	OB							
	CPD -35° 1682	7 40.7	-33 46	FEB. 21 1976	00:06	03:36	210m/✓	1 13 W	1"/phot.	"	"	"	10.24	OB	"	"	—	"	"	"	
	HD 90578	10 25.1	-57 42		03:42	05:19	97m/✓	0 11 W					9.41	B1.5 III							SLS 1557
	SLS 1569	10 25.8	-58 10		05:25	07:25	120m/under	2 16 W					9.6	OB							
	HD 90832	10 27.0	-57 16		07:28	09:34	126m/✓	4 26 W					9.42	B1 III							SLS 1570
1044	HD 61709	7 38.2	-31 14	Feb. 22 1976	00:02	01:08	66m/✓	1 09 E	1/2"/clear	344	50μ/1.6	120/7.0	8.63	B2 II	NeA	60s	—	IIa-O	15m metol sulfite	Tnr	faint close compn.
	HD 61827	7 38.9	-32 30		01:12	01:52	40m/over	0 26 E	"				8.20	B3 Ia							
	CPD -31° 1856	7 43.7	-32 10		01:55	03:04	69m/over	0 42 W	1"				8.74	B3 Ia							
	HD 62150	7 40.3	-32 34		03:07	03:30	23m/under	1 11 W	"				8.19	B3 Ia							clouds, bad
1045	HD 61827	7 38.9	-32 30	FEB. 23 1976	00:00	00:30	30m/✓	1 44 E	1/2"/phot.	"	"	"	8.20	B3 Ia	"	"	—	"	"	Tnr	
	HD 62150	7 40.3	-32 34		00:33	01:03	30m/✓	1 13 E	1/2-2"				8.19	B3 Ia							
	CPD -32° 1734	7 43.5	-33 09		01:06	03:43	157m/✓	2 01 W	"				9.94	B3 Ia							
	SLS 1885	10 45.1	-57 25		04:06	06:15	129m/✓	0 55 W	"				9.7	F5 II							HD 93444, var?
	HD 93619	10 46.3	-57 12		06:18	06:29	11m/✓	1 08 W	"				7.10	B0.5 Ib							SLS 1566
	SLS 1876	10 44.6	-56 52		06:34	09:19	165m/✓	4 00 W	"				9.8	OB-							
	HD 88661	10 10.9	-57 56		09:22	09:26	4m/✓	4 41 W	"				5.57	B2p							SLS 1446
1046	CPD -31° 1856	7 43.7	-32 10	FEB. 24 1976	23:58	00:51	53m/✓	1 25 E	1/2"/phot.	"	"	"	8.79	B3 Ia	"	"	—	"	"	Tnr	
	CPD -32° 1694	7 40.9	-33 00		00:55	04:43	228m/✓	2 31 W	"				10.21	OB							
	SLS 1572	10 26.1	-57 22		04:51	07:54	183m/under	2 58 W	1"				10.0	OB-							extremely rich field near IC 2581
	HD 90187	10 22.2	-57 52		07:56	09:46	110m/✓	4 54 W	"				9.13	B1 III ne							SLS 1524
	CPD -31° 1781	7 39.9	-31 52	FEB. 25 1976	00:04	02:01	117m/✓	0 06 E	1"/phot.	"	"	"	9.65	B2 II	"	"	—	"	"	Tnr	
	HD 63423	7 46.6	-30 28		02:04	02:37	25m/✓	0 24 W	"				8.15	OB Ia							telescope vibration
1047	HD 63423	7 46.6	-30 28	FEB. 26 1976	00:27	00:52	25m/✓	1 18 E	1"/phot.	"	"	"	8.15	OB Ia	"	"	-	"	"	Tnr	
	HD 63804	7 48.5	-33 15		01:03	02:00	57m/✓	0 15 E	<1"				8.98	B9 Iae							
	HD 88606	10 10.5	-57 55		02:12	03:34	82m/✓	0 59 E	"				9.15	A2 Iab							SLS 1445
	HD 88879	10 12.5	-58 14		03:37	04:31	54m/✓	0 05 E	"				8.86	B0.5 Ib							SLS 1454

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1047 (contd)	SLS 1461	10 13.8	-58 11	FEB 26 1976	04:34	06:56	144m/✓	2 20 W	1"/phot	344	50μ/1.0	120/2.0	9.4:	OB	NeA	60s	—	IIa-O	15m neut sulfate	Tnr	
	SLS 1818	10 43.0	-57 33		07:01	08:03	62m/✓	2 57 W					8.6	OB⁻(Ic)							
	SLS 1858	10 43.8	-57 57		08:08	08:28	20m/under	3 21 W	>2"				9.1	OB							stopped down for poor seeing
1048	HD 46223	6 30.8	+4 57	MAR 8 1976	00:00	00:12	12m/under	0 01 W	2"/clear	344	50μ/1.6	120/2.0	7.5	O4 V((f))z	NeA	60s	—	IIa-O	15m neut sulfate	Tnr	
	"	"	"		00:13	00:33	20m/✓	0 22 W						"							
	"	"	"		00:35	01:05	30m/✓	0 54 W						"							
	HD 93028	10 42.3	-60 04		01:17	01:49	32m/✓	2 33 E	"				8.30	O9 V							
	"	"	"		01:50	02:44	54m/✓	1 38 E						"							
	o^2 Cen	11 30.7	-59 23		02:48	03:00	2,3½,5m	2 11 E	"				5.63	A3 Ia							
1049	SLS 1601	10 22.9	-57 38	MAR 8 1976	03:24	05:54	150m/✓	1 47 W	"	"	"	"	9.8	OB⁻	"	"	—	"	"	Tnr	
	SLS 1772	10 41.0	-57 20		05:58	09:29	211m/✓	5 10 W	"				10.0	OB							
1050	CPD-33°1768	07 46.4	-33 15	MAR 10 1976	03:47	04:48	61m/exp	3 31 W	1½"/phot	"	"	"	11.1	OB	NeA	1s	—	IIa-D	"	Tnr/Gw	exposed by accident.
	VY Cmi sf	10 43.6	-57 26		04:58	05:41	43m/exp	1 26 W	"				11.0	B							
1051	SLS 1759	10 40.4	-57 32	MAR 10 1976	06:05	09:37	212m/under	5 26 W	"	"	"	"	9.8	OB?	NeA	60s	—	IIa-C	"	Tnr/Gw	
	CPD-34°1785	7 52.4	-34 50	MAR 11 1976	00:09	00:23	14m/✓	0° 58 E	1"/clear	"	"	"	7.45	cF8							
	HD 63423	07 46.6	-30 28		00:26	00:44	18m/under	0° 30 E					8.89	OB							
1052 IT	CPD-33°1768	07 46.4	-33 15	Mar. 11 1976	01:01	01:41	41m/✓	0° 26 W	"				11.1	OB	—	—	—	IIa-D	"	Tnr/Gw	
1053 IT	CD-31°5034	7 44.9	-32 51	Mar. 11 1976	01:51	02:53	62m/✓	1 40 W	"				11.7	OB	—	—	—	"	"	Tnr/Gw	
	CD-30°5220	7 51.6	-30 39		02:59	04:21	82m/✓	3° 02 W	"				11.8	OB							misidentification?
	VY Cmi sf	10 43.6	-57 26		04:26	05:07	41m/✓	0 56 W					11.0	B	NeA	1s	—				
1054	SLS 1576	10 26.4	-56 59	Mar. 11 1976	05:34	07:50	136m/✓	3 58 W	"	"	"	"	9.9	OB⁻	NeA	60s	—	IIa-C	"	Tnr/Gw	
	SLS 1655	10 33.5	-57 13		07:54	09:45	111m/✓	5 44 W					9.3	OB							
1055 IT	CD-30°5230	07 52.2	-30 41	Mar. 12 1976	00:13	02:19	66m/✓	0° 03 W	1½"/clear	"	"	"	11.8	OB			—	IIa-D	"	Tnr/Gw	
	CPD-30°1894	07 38.7	-30 44		01:24	01:44	20m/✓	0 41 W					10.43	OB							
	CPD-32°1689	7 40.8	-32 33		01:54	02:15	21m/✓	1 11 W					10.44	OB							
	CPD-30°1946	07 42.4	-30 49		02:21	02:44	23m/✓	1 38 W					10.57	OB	NeA	1s					
1056	SLS 1630	10 31.4	-56 36	Mar. 12 1976	03:06	05:18	132m/✓	1° 14 W	"	"	"	"	9.9	OB⁻			—	IIa-O	"	Tnr/Gw	
	HD 90881	10 26.7	-58 16		05:21	07:40	139m/✓	3 50 W					9.3:	B2 IV	NeA	30s					

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1057	HD91969	10 34.9	-58 05	Mar 14/76	00 16	00 22	6m/	3h 28 E	1½-2/clear	344	50μ/0.8	1½/76	6.53	B0 I	NeA	60s	None	IIaC	M-S	Gue/Mar	
	CPD-57°3523	"	"		00 27	00 44	16m/	3h 06 E					8.05	B1 III							
	CPD 57°3524S	"	"		00 55	02 11	75m/	1h 41 E			50μ/0.6		9.28	B1 III							Frost #19 NGC 3293
	CPD-57°3524N	"	"		02 14	03 17	63m/	0h 33 E					9.23	B1 V							Frost #18
	CPD-57°3507	10 34.7	"		03 20	04 18	58m/	0h 29 W					9.24	B1 V	NeA	60s					
1058	HD303068	10 34.2	-58 07	MAR 25/76	05 28	07 32	122m/	4h 28 W	1-1½"/ph.	"	"	"	10.02	B1 V	NeA	60s		"	"	Gue	
	HD 91824	10 34.2	-58 08		07 36	08 00	24m/	4h 55 W					8.10	O7	NeA	60s					
1059	HR3872	09 42.7	-51 09	MAR 26/76	06 43 40	07 00 ~~06 43 40~~	24.8m/ ~~07 00~~	4h 49 W	1"/ph	"	"	"	6.1	B8	NeA	60s				Gue/Sa	
1060	HR 6165	16 34.7	-28 13	"	07 18	—	10s/	1 42 E	1-1½"/ph	"	"		3.08	B0 V	NeA	60s				"	
	HR 5993	16 06.8	-20 36		07 29	—	22s/	~1h E					3.91	B1 V							
	HR 5285	14 04.8	-41 11		07 40		28s/	1h 09 W					4.15	B2 V							
	HR 5035	13 21.4	-60 48		07 46		36s/	1 58 W					4.38	B3 V							
	HR 5712	15 21.7	-36 45		07 52		36s/	0h 04 W					4.38	B4 V							
	HR 5453	14 36.5	-49 18		07 58		22s/	1h 55 W					3.89	B5 V							
	HR 5026	13 19.2	-52 37		08 02	08 04	90s/	2h 18 W					5.34	B6 V							
	HR 4879 ~~HR 5625~~	12 50.7	-39 33		08 20	08 23	180s/	3h 06 W					5.86	B8 V							
1061	HD303075	10 35.0	-58 07	MAR 28 1976	05 08	07 13	125m/	4h 20 W	1-1½/cirrus	"	"	"	10.08 ~~B1 V~~	B1 V	NeA	60s				Gue	
	HD303067	10 35.0	-58 04		07 16	08 53	97m/	5h 58 W					9.60	B1 V	NeA	60s					
1062	CPD-57°3522	10 35.2	-58 03	MAR 28/29 1976	23 58	03 28	155m/	0h 42 W	1½/sc cirrus	344			10.15	B2 V	NeA	60s				Gue	interrupted by cloud
	HD303065	10 35.1	-58 01		03 30	05 03	93m/	2h 15 W	clear				9.97	B2 V							
	HD92024	10 35.0	-58 04		05 06	06 03	57m/	3h 12 W	"				9.02	B1 III							
	HD 92007	10 35.0	-58 05		06 04	06 36	32m/	3h 46 W	"				8.29	B0.5 III							
	CPD-57°3521	10 34.8	-58 05		06 37	07 06	29m/	4h 15 W					8.21	B1 III							
	CPD-57°3506	10 34.7	-58 05		07 09	07 23	14m/	4h 32 W					7.69	B1 II	NeA	60s					
~~1063~~	~~Comet West~~	~~20 53.0~~	~~-12 04~~		~~08 33~~	~~08 47~~	~~14m/~~														Unwidened.

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1063	S253 #50	06h 23.6	+20 00	April 9/10 1976	23 40	0144	124/✓	353W	1¼/thin cirrus	341	70μ/0.8	112/7.0	11.5				NONE	IIa-D	IM-S 15 min 67°F	JM	
	B07 LS 1132	8 42.7	-75 49		205	0247	42/✓	237W	1"/thin cirrus		/1.2		10.4	OB	NoA	2s					
1064	Ru44 #884	7563	-28 34		324	4:4	+0/120	437W	1" cirrus		/0.8		11.4	O7:							
	LS 3304	15 02.5	-60 45		518	600	42/70	030E	2" cirrus		/1.2		10.3	OB							lots weird?
	LS 3320	15 12.4	-59 32		614	749	79/90	112W	1½-2" clear		70μ/0.8		11.5	OB2, W	NoA	2s					
1065	Tr27 #23 LS 4266	17 35.1	-33 23		840	912	92/100	112W	1-1½" cirrus		/1.2		11.6	OB+	NoA	2s					dawn
1066	S284 #1	6442	+00 22	April 10/11	00 00	220	140/✓	412W	1½ cirrus		70μ/0.8		11.9		NoA	2s				JM	
1067	Ru44 #884	7563	-28 34		255	415	80/✓	426W	1-1½"		/0.8		11.4								
	~~#909~~	~~7584~~	~~-28 51~~										~~11.4~~								
	LS 3307	15 04.3	-63 36		607	700	53/35	035W	1-1½" clear		/0.8		11.0	OC+(f)	NoA	2s					220 rad fr. bright star 24 frames
1068	Tr27 #14	17 35.1	-33 27		725	1007	162/190	108W	1-1½"		/1.2		12.3		NoA	2s					dawn much scatter star 90°E on slit
1069	S287 #1 LS 85	6447	-07 18	April 11/12	2325	225	180/✓	420W	1-1½" thin cirrus		70μ/0.8		12.3		NoA	2s				JM	
1070	Ru44 #909	7584	-28 51		251	340	49/40	422W	1½"		/1.2		10.4								
	LS 3201	14 06.3	-64 05		352	447	55/✓	214E	1½"-2"		/1.2		10.6	OB+							
	LS 3349	15 22.5	-63 33		631	720	51/30	037E	1½" clear		/0.8		10.9	OB+h	NoA	2s					
1071	Tr27 #102	17 34.5	-33 27		746	828	44/✓	025E	1½-2" cirrus		/1.2		10.3								
	#104	17 35.3	-33 23		837	1012	95/✓	119W	1-1½"		/1.2		11.5	BoII:	NoA	2s					dawn
1072	S301 #1	7090	-18 27	April 12/13	23 47	056	69/✓	235W	1-1½" scattered clouds		70μ/0.8		11.3							JM	
	Ru44 #885	7564	-28 38		109	209	60/65	250W	1-1½"		/1.2		11.2								
	#920	7592	-28 46		218	400	102/✓	446W	1-1½"		/0.8		11.6		NoA	2s					first complete ADF down.
1073	LS 3223	14 18.2	-62 42		531	629	58/✓	052W	1½"		/0.8		11.3	OB+							
	3283	14 46.9	-57 28		635	743	68/✓	141W	1½"		/0.8		11.3	OB+	NoA	2s					
1074	HD50019	6 51.1	+34 00	April 13/14	2335	2336	8s/✓	131W	½-2" clear		/1.2		3.7	A3III						JM	
	HD 87025	10 15.3	+23 32		2353	2353	6s/7s	135E	¼		/1.2		3.7	F0III							
	HD 36673	5 31.3	+7 51		0010	0015	5s/✓	330W	1½"		/1.2		2.8	F0Ib							5.5 mag comes
	HD 47731	6 39.8	28 12		0045	0050	3s/✓	258W	1½"		/1.2		7.5	G5Ib							
	HD 45416	6 26.0	+00 19		0058	100	52s/✓	320W	1½"		/1.2		6.4	K.III	NoA	2s					
1075	HD60522	7 34.4	+26 57		0145	0200	12s/45s/24s	300W	1½"		/1.2		5.6	M0III							
	HD 86663	9 59.0	+8 09		0200	0204	24s/48s/96s/24s	053W	1-1½"		/1.2		6.3	M2III	NoA	2s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1076	HD[illegible]	737.7	3137	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	341	70μ/12	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	4 [illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]		303	[illegible]	[illegible]						5.3	G2 Ib					67°F		
	[illegible]	[illegible]	[illegible]		311	311	6[illegible] / ✓	214W	1-1½"				[illegible]	[illegible]							
	HD111812	12 50.5	+2740		318	320	35s/30s	043E	1-½"				5.7	G0 III							
	HD121370	13 53.5	+18 31		328	339	10s/✓	126E	1-½"				3.3	G0 IV							SS may Acetler
	HD102870	11 49.3	+1 54		346	346	7s/✓	045W	1-½"				4.2	F8 V	NoA 2s						
1077	LS 3256	14 28.4	-60 15		451	527	36/32	012E	1-½"		70μ/0.8		10.8	OB							
	LS 3324	15 13.2	-59 23		535	611	36/32	014E	1"				10.8	OB							
	LS 3729 NGC 6208	16 43.1	-47 29		624	703	39/✓	051E	1"				10.9	B2 V							
	LS 3718	16 42.0	-47 27.5		710	725	15/✓	028E	1"				9.9	OB?							
	LS 3722	16 42.4	-47 22		730	740	10/✓	013E	1"				9.5	OB	NoA 2s						
1078	LS 3719a	16 42.3	-47 25		807	817	10/✓	024W	≤1"				9.5	OB							
	3719b	"	"		819	907	48/✓	114W	1"				11.0								Source of contamination 42" E.
	3719c	"	"		909	934	25/✓	140W	≤1"				10.5		NoA 2s						
~~1079~~	~~HD164514~~	~~17564~~	~~-2254~~										8.2	~~A5 Ia~~							
1079	HD182835	19253	0017		1009	1010	12s/✓	028E	1"		/12		5.2	F2 Ib							
	HD204867	21 30 3	-0541		1015	1016	45s/✓	226E	1"		/12		3.7	G0 Ib							
	HD206778	21 43 0	+946		1020	1021	7s/✓	232E			/12		4.0	K2 Ib	NoA 2s						
1080	HD 23249	342.0	-9°51	Nov 14/15	2311	2312	15s/10s	420W	1½" clear		/12		4.5	K0 IV						Jn.	
	HD102870	11493	+154		2318	2318	9s/✓	340E			/12		4.2	F8 V							
	HD 87449	10 04.4	+19 36		2324	2324	25s/20s	203E			/12		5.3	F6 III							
	HD 30652	4 48.2	+6 55		2331	2341	10s/✓	351W			/12		3.6	F6 V							SS may emiss.
	HD 47105	6 56.4	+16 25		2359	0004	22s/[illegible]	220W			/12		1.9	A0 IV	NoA 2s						" "
1081	S301 H208	7087	-18 26		0037	209	88/60	352W			/08		11.7								
	LS 1174	8 49.3	-43 04		221	237	16/40	235W	clouds/clear		/08		11.6	OB?							16 terminal cycle: clouds delayed start
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	111	25s/35s	340W	1" broken clouds				[illegible]	[illegible]						Jn.	
	HD [illegible]	610.7	+22 56		115	120	5m/12m	406W			/12		7.5	M1 [illegible]							
	HD 39801	5535	+724		127	138	11m/✓	439W			/12		2.7	M2 Iab							SS may emiss.
	HD 60058	7400	-31 36		145	150	5m/4.5m	305W			/12		7.6	G0 Ia							
	HD 87737	10057	+16 53		202	205	8m/✓	054W			/12		3.5	A0 Ib							

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS	REMARKS
1083	LS 3218	14169	-6309	April 15-16	325	641	86/95	120W	1"-4" bthn clds	341	70μ/08	112/7.0	118	OBp	NeA	2s	None	IIaD	MS 15 min 67°F	Jn	11+16+59
1084	CPD-57°3504	10 35.2	-58 03	April 16-17 1976	01 37	03 20	103m/130	1h43 W	2"/cirrus	341	50μ/0.6	112/70	10.02	B1II	NeA	60s		IIaO	"	Gue	
1085	< Hya	9 26.4	-8 33	30/1	0013	0021	1,2,4m/2m	47m W	1.5	3.10	50μ/1.2	67/445	3.4	K4	N.A	60s	None	IIaC	MS	[illegible]	T=15°C H=30%
	"	"	"	Ap/May 1976	0025	0032	"	1h W	"	2.86	"	"	"	"	"	"	"	"	"	"	
1086	ν Hya	10 48.1	-16 02	"	0046	0053	6m/4m	0h1m E	"	"	"	"	4.4	K3	"	"	"	"	"	"	
	46 Lmi	10 51.6	+34 23		0100	0112	12m/16m	14m W	1.5				4.1	K0							[illegible]
	φ Leo	11 15.1	-3 29		0118	0122	3.5m ✓	0m	1.5				4.7	A7							
	υ Leo	11 35.4	-0 39		0125	0133	8m ✓	16m E					5.3	[illegible]							
	η Vir	12 18.4	-0 [illegible]		0136	0138	2m ✓	46m E					3.9	A2							
	γ Vir N	12 40.1	-01 17		0144	0147 ~~0152~~	3m ✓	60m E	1.5				3.9	F0 I							
	γ Vir S	"	"		0148	0152	3m/2m	55m E	"				"	"							
	δ Crt	11 17.8	-14 37		0157	0203	5m ✓	31m W	"				4.7	G5							
	γ Crt	11 23.4	-17 31		0200	0209	3m ✓	31m W	"				4.3	A7							
	γ Crv	12 14.3	-17 23		0212	0213	4.5s (2m) 35s	8m E	"				2.5	B8							
	δ Crv	12 28.3	-16 [illegible]		0216	0218	60s/50s	17m E	"				2.9	B9.5							
	η Crv	12 30.5	-16 02		0220	0224	4m ✓	12m E	"				4.7	F0							
	β Crt	11 10.2	-22 40		0225	0233	4m ✓	1h17m W	"				4.5	A2							
1087	Rx Boo	14 22.8	+25 50	"	0256	0420	34m/20	9m E	"				8.	M8							
	π Lup	15 03.1	-46 56		0427	0430	3m/1m	38m E	"	2.90			4.0	B3							
	λ Lup	15 06.8	-45 10		0435	0437	1.5m/3m	35m E	"				3.9	B3							
	κ Lup A	15 09.0	-48 38		0443	0445	2m ✓	8m E	"				4.1	B9							
	" B	"	"		0446	0501	12m ✓	14m E	"				6.3	A0							
	ξ Lup	15 10.1	-51 59		0507	0511	4m ✓	6m E	"				4.3	K0							
	β Crv	15 15.2	-58 41		0522	0524	2m/3m	2m W					4.2	A3							
	γ TrA	15 16.1	-68 34		0527	0529	1m ✓	5m W					2.9	A0							
	[illegible]	15 16.4	-47 46		0532	0534	2m/3m	1m W					4.11	B8							
	[illegible]	15 19.4	-46 32		0537	0538	1m/2m	13m W					3.0	A2							
	ε Lup	15 20.6	-44 35		0542	0543	7m/15	18m W					3.2	A2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 93

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1085	χ Cen	15 21.0	-54 13	30 May 1978	0558	0606	2m ✓		1.5"/clear	2.90	50μ/1.2	6+/4.45	4.7	B5 + F8	NONE	60	NONE	IIa-C	IIIa-J + 1.5 comp	0-J	
	"	"	"	1 June 1978	0601	0606	5m / 3m	38m W	"	2.90	"	"	"	"							
	χ Lup	15 33.1	-41 04		0601	0611	30s ✓	32m W					2.6	B2							
	ε TrA	15 34.0	-66 13		0615	0625	8m ✓	45m W	"				5.3	K0							
	ω Lup	15 36.0	-42 28		0627	0647	20m / 15m	64m W	"				5.7	K1							
	γ Lup	15 39.1	-44 34		0649	0655	5m / 6m	70m W					5.0	F5							
	β TrA	15 52.5	-63 26		0658	0651	40s / 80s	60m W					3.2	F2							
	δ Ara	18 04.3	-50 06		0703	0705	1m / 1.5m	1h 5m E					3.0	B2							
	π Par	18 05.7	-63 40		0708	0713	5m ✓	1h E					4.6	A5							
	ε TrA	18 09.0	-65 58		0716	0724	8m / 9m	56m E					5.5	A8							
	ξ Par	18 20.5	-61 51		0727	0740	12s / 15m	56m E					4.8	K2							
1089	ζ TrA	18 24.8	-65 59	"	0750	0752	1m / 1.5m	51m E	"	"	"	"	3.3	B3	"	"	"	"	"	"	
	ζ Tel	18 26.5	-49 05		0755	0801	6m ✓	31m E					5.1	A0							
	θ CrA	18 31.4	-42 20		0804	0815	10m ✓	22m E					5.0	G5 III							
	ζ Par	18 39.5	-71 27		0818	0825	6m ✓	21m E					5.1	K2							
	κ Pav	18 49.9	-62 13		0825	0831	2m / 3m	24m E					4.1	B9							
	λ Pav	18 53.9	-67° 16		0834	0839	5m / 8m	20m E					4.1	F5							
	β Ind	20 52.5	-58 34		0843	0850	20m ✓	2h 8m E					4.9	A0							
	ε Pav	20 05.8	-66 16		0853	0857	3m ✓	1h 16m E					4.3	A0							
	is Pav	20 42.3	-66 19'		0900	0902	1.5 ✓	1h 46m E					3.6	A3							
	58 Pav	21 24.0	-65 30		0907	0913	3m / 4m	2h 16m E					4.7	F8							
	ρ Oct	22 43.1	-81 32		0920	0923	3m / 4m	3h 30m E					4.4	A7							
	κ Pav	20 23.3	-56 50		0926	0928	20s / 30s	1h 1m E					4.2	B3							
	η Ind	20 41.8	-52 02		0931	0934	5m ✓	1h 5m E					4.8	A7							
1090	ν Ind	20 55.5	-47 24		0945	0947	3m / 2.5m	52m E	"				4.1	A0							
	χ Phe	20 59.5	-32 23		0952	1000	8m / 9m	1h 4m E					2.35	B.4							
	39 Cap	20 22.7	+32 00		1005	1020	15m / 30m	7m E					2.75	A3							
1091	δ² Vel	08 08.8	-47 16	1/2 May 1978	2258	2259	20s ✓	46m W		2.90			1.6	OVR						high wind gust	
	β Car	09 12.9	-69 36		2305	2306	15s ✓	16m E					1.7	A0							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1091	38 Lyn	9 17.0	+36 56	1/2	2322	2328	5m / ✓	8m W	2-3" / clear	2.910	50 / 1.2	C4745	3.8	A2	NEA	60s	NONE	IIa-O	M-567E 15mm	✓	
(CONT)	α Lyn	9 19.2	+34 31	MAY 1976	2334	2004	30m / 18m	42m W	3" / "				4.7	MO							
	21 LMi	10 05.7	+35 24		0008	0009	11m / ✓	10m W	"				4.7	A7							
	β LMi	10 26.2	+36 52		0023	0039	16m / ✓	11m W	"				5.1	G9							
	ξ UMa	10 16.6	+31 42		0044	0055	11m / 6m	25m E	"				4.4	G0							3rd double
	ν UMa	11 16.9	+33 15		0058	0113	15m / +8m	5m E	"				4.9	K3							
	α Crv	12 06.9	-24 34		0120	0123	45s / ✓	46m E	1"5 / clear				4.3	F2							
	ε Crv	12 08.6	-22 27		0125	0132	6m / 4m	40m E	"				4.4	K3							
	β Crv	12 32.8	-23 14		0134	0136	1m5 / ✓	60m E	"				5.6	G5							
	γ Hya	13 17.3	-23 01		0139	0142	3m / ✓	1h 38m E	2" / "				3.9	G8							
	9 Hya	13 28.1	-23 08		0157	0354	1m2 / ✓	0h 28m W	"				5.5	gmt							
1092	π Hya	14 04.7	-26 32		0409	0413	4m / +2m	6m W	1"5 / "				4.3	K2							
	58 Hya	14 48.5	-27 50		0417	0419	2m / 8m		"				5.8	K4							Tangent sheet
	"	"	"		0420	0441	21m / +10m	10m E	"				"	"							
	σ Lib	15 02.3	-25 16		0444	0454	16m / +5m	11m E	"				5.0	M4							
	υ Lib	15 35.2	-28 02		0456	0507	11m / 10m	0h 30m E	"				5.0	K5							
	ζ Lib	15 36.8	-29 04		0509	0511	2m / ✓	0h 19m E	"				3.8	B2.5							
	2 Sco	15 51.8	-25 14		0514	0517	3m / ✓	0h 37m E					4.5	B2.5							4th component in K.A.
	β Sco	15 55.0	-29 08		0519	0521	1.5m / ✓	0h 37m E	"				3.6	B2							
	π Sco	15 57.0	-26 02		0522	0523	30s / 40s	0h 31m E	"				2.7	B1							
	δ Sco	15 58.6	-22 32		0525	0526	30s / ✓	0h 34m E	"				2.2	BC							
	ω¹ Sco	16 05.0	-20 35		0528	0530	2m / ✓	0h 47m E	2" / "				3.4	B1							
	ω² Sco	16 05.6	-20 47		0532	0534	1m / ✓	0h 47m E	"				5.2	gG2							
	13 Sco	16 10.5	-27 51		0544	0547	3m / ✓	0h 55m E	"				4.4	B2.5							
1093	τ Sco	16 19.4	-25 31		0557	0558	1m / ✓	0h 04m E	"				3.0	B1							
	ι Sco	16 27.6	-26 22		0601	0603	1.5m / 4.7m	0h 27m E	"				2.7	M1							
	ω Oph	16 30.4	-21 24		0605	0611	5m / 3m	0h 26m E	"				4.5	A2							
	τ Sco	16 34.0	-28 09		0614	0615	1m / ✓	0h 21m E	"				2.6	BC							
	ξ Oph	17 19.2	-21 05		0618	0625	5m / ✓	1h 9	"				4.7	F2							
	ε Oph	17 20.2	-24 58		0626	0628	1.5m / 1m	1h 0m E	"				3.0	B2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 95

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	44 Cph	17 24.5	-24 C9	1/2	0636	0636	5m ✓	1h 30m E	2-3"	2.40	50μ 1.2	87 44½	4.4	JA?	NeH	60'	NON.	IIaO			
	45 Cph	17 25.4	-29.91	MAY 1976	0638	0644	5m ✓	1h 33m E	"				4.7	F5							
	χ Sgr	17 45.7	-27 49		0646	0655	12m ✓	1h 29m E	"				5.3	F8							
	W Sgr	18 03.1	-29 35		0701	0710	10m ✓	1h 19m E	"				5.1	F8p							
	-28° 14174	18 06 2	-28 28		0714	0725	10m ✓ 20m	1h 22m E	1.5"				5.5	Gp							HR 6702
	μ Sgr	18 12 0	-21 04		0727	0731	4m ✓ 3m	1h 22 E	"				4.1	B8							
	-27° 12684	18 16 2	-27 03		0734	0816	40m ✓ +20m	0h 01m E	2"	'	"	'	6.3	gK5							HR 6842
1074	σ Sgr	18 19.1	-29 51	"	0824	0828	4m ✓ +2m	0h 11m W	"				4.1	K2	"	"	"	"	"	"	
	λ Sgr	18 26 1	-25 26		0831	0834	2.5m ✓ +1.5	0h 06m W	"				3.8	K2							
	φ Sgr	18 43.8	-27 01		0836	0837	1m ✓	0h 04m W	"				3.1	B8							
	σ Sgr	18 53.4	-26 20		0839	0840	24s ✓	0h 15m W	"				1.9	B2							
	ζ² Sgr	18 55.9	-21 07		0842	0847	5m ✓	0h 10m ✓					4.6	K1							
	ζ Sgr	19 00.7	-29 55		0849	0850	45s ✓	~~1h 12m~~ 10m E					2.6	A2							
	σ Sgr	19 02.9	-21 47		0853	0900	7m ✓ 5	4m E					4.8	G8							
	τ Sgr	19 05.1	-27 43		0905	0912	5m ✓ 4	6h W	2"				3.5	K1							
	π Sgr	19 08.0	-21 04		0915	0917	1m ✓ 1.5	9h W					3.2	F2							
	52 Sgr	19 34.9	-24 57		0920	0925	4m ✓ 3.5	12m E	"				4.5	B9							
	59 Sgr	19 55.1	-27 15		0927	"	33m ✓ +15	4m W	1.5"				6.0	K3							
	62 Sgr	20 00.8	-27 48		0932	0932	30 ✓ 15	3m W					6.1	mg							
1095	p Cas	10 31.0	-61 32	2/3 MAY 1976	2251	2254	2m ✓ 0.7m	2h 16m E	2" Clouds				3.2	B5							10 C. Aum 38/11
	θ Crv	10 41.9	-64 19		2256	2257	45s ✓	2h 23m E	"				2.5	B0.5							
	I Car	10 23.5	-73 53		2301	2307	6m ✓	1h 16m E	"				4.3	F3							
	κ¹ Hya	10 32 7	+31° 57'		2314	2315	35s ✓	1h 44m W	5"				2.0	A1+Am							
	10 LMi	9 32.4	+36 32		2323	2336	12m ✓ 24m	5m W	2"				5.5	G8							
	γ Crv	8 41.6	+21 35		2340	2345	5m ✓	1h 5m W	2" Vail				4.7	A1							
	ζ UMa	10 15.0	+23 34		2350	2352	2m ✓	23m E	2"				3.8	F0 III							
	δ UMa A	"	"		2358	0000	2m ✓						3.5	K0							
	81 UMa B	10 18.3	+20 00		0001	0010	5m ✓ 5	0m E	2" Clouds				4.7	?							Some contamination from A ↑ 11'
	54 UMa A	10 54.0	+24 55		0015	0019	4m ✓		1"				4.5	A1							
	54 UMa B	"	"		0020	0025	2m ✓	21m E	1.5				6.3	A1							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB	EMUL	DEV	OBS	REMARKS
1095 (cont)	60 Leo	11 00.7	+20 20	4/5	0034	0034	5m / 4m		1"5 clear	2.90	50µ/1.2	C1/2.45	4.5	Am	NeA	60s	NONE	IIa-C	IIIaJ GTF /15mm	IVa-J	
	"	"	"	MAY 1976	0040	0043	3m / 4m	17mE	"	"	"	"	"	"	"	"	"	"	"	"	
1096	ζ Leo	11 12.5	+20 41	"	0034	0035	50s / 1m	17mE	2"	"	"	"	2.7	A4	"	"	"	"	"	IVa-J	
	93 Leo	11 46.4	+20 23		0101	0109	8m ✓	30mE	2"				5.1	A+G5							
	8 Com	12 25.4	+28 26		0112	0128	20m ✓	1h35mE	"				5.5	K1							
	β Com	13 10.5	+28 02		0141	0147	6m ✓	2h01mE	"				4.8	G0							
	χ Leo	11 03.5	+7 30		0200	0204	3m ✓	1h03mW	"				4.9	F2							
	J Leo	11 19.6	+6 12		0212	0214	1.5m ✓	52mW	"				4.1	B9							
	π Vir	11 54.3	+6 47		0222	0228	4m ✓	0h28mW	1.5"				4.7	A4							
	O Vir	12 03.7	+8 54		0239	0245	6m ✓	0h45mW	"				5.1	G8							
	δ Vir	12 54.1	+3 34		0256	0303	7m ✓	2h19mW	2"				4.9	m3							
	θ Vir	13 08.4	-5 23		0310s	0315	5m / 4m	9mW	2"				4.3	A1							
	"	"	"		0318	0320	2m / 4m	14mW	"				"	"							
	ξ Vir	13 33.2	-0 27		0325	0326	1.5m ✓	5mE	"				3.5	A3							
	ι Leo	11 12.7	+15 36		0330	0332	2m ✓	2h21mW	2"				3.3	A2							
1097	ζ Boo	14 33.4	+29 52	"	0342	0345	3m / 5m	1h25mE	1.5"	"	"	"	4.8	F2	"	"	"	"	"	"	
	ε Vir	13 00.7	+11 07		0356	0357	1.5m ✓	1h0mW	"				3.8	G4							
	λ Com	13 08.5	+17 41		0400	0411	5m ✓	1h6mW	"				5.5	F5							
	ξ Boo	13 45.8	+17 36		0420	0426	6m ✓	1h23mW	2"				4.9	F7							
	ν Boo	13 48.6	+15 57		0433	0443	10m / +20	1h37mW	"				5.3	K5							
	η Boo	13 53.3	+18 33		0449	0452	1.5 ✓	1hW	"				3.3	G0							
	ε Boo	14 43.7	+27 12		0456	0457	1m / 1.5	16mW	1.5				3.3	K1							
	γ Boo	15 03.2	+27 04		0502	0515	13m ✓	14mW	"				5.7	K2							
	β CrB	15 26.6	+29 12		0517	0520	2m ✓	5mE					3.9	Fp							
	α CrB	15 33.1	+26 49		0523	0523	30s / 40s	8mE	"				2.2	A0							
	χ CrB	15 41.5	+26 23		0526	0528	2m ✓	11mE					3.8	A0							
	ι CrB	15 48.3	+26 10		0531	0543	2m ✓	3mW					5.4	G5							
1098	ε CrB	15 56.3	+26 58		0551	0602	11m ✓	47mW	"				5.4	K3							
?	β Her	16 28.9	+21 33		0604	0606	2m ✓	26mE					3.7	G8							
	ζ CrB	16 20.9	+30 58		0612	0622	10m / 15	4mW	"				5.5	K0							

NUMBER	OBJECT	R.A.	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	ζ Her	16 40.2	+31 39	2/3	0625	0627	2m ✓	10m E	1.5	2.90	50μ / 12	6t / 4.49	3.5	G0							
	η Her	16 41.9	+38 59	MAY 1976	0631	0635	4m / 5m	4m W	"				4.4	G7							
	ε Her	16 59.1	+30 58		0639	0640	1.5m / 2.5	1m E	"				3.8	A0							
	π Her	17 14.0	+36 51		0643	0652	5m ✓	18m E	"				4.6	K3							
	68 Her	17 16.2	+33 08		0654	0658	4m / 5m	16m E	"				4.4	B3							
	ρ Her A	17 22.6	+37 10		0701	0705	4m / 5m	13m E	"				4.5	Ap							
	ρ Her B	17 22.6	+37 10		0707	0717	10m / 12m	5m E	"				5.5	B9							[illegible]
	ξ Her	17 13.8	+24 52		0720	0722	2m ✓	12m E	2'-3				3.2	A3							[illegible]
	λ Her	17 29.5	+26 08		0725	0730	25m / 30m	22m W	2'-3'				5.6	K4							[illegible]
	μ Her	17 45.3	+27 44		0752	0756	4m ✓	14m W	"				4.2	G5							
1099	θ Her	17 55.2	+37 15	"	0806	0812	6m / 12	16m W	2"	"	"	"	4.8	K1	"	"	"	"	"	"	
	ν Her	17 57.4	+30 11		0814	0820	6m ✓	22m W	"				4.8	F2							[illegible]
	κ Lyr	18 18.3	+36 03		0823	0833	10m / 12m	17m W	"				5.2	K2							
	α Lyr	18 33.9	+38 45		0836	0846	4m / 6.5	4m W	"				0.0	A0							
	ε' Lyr A	18 43.4	+39 35		0842	0850	3m / 10m	10m W	"				5.1	A2							
	ε' Lyr B	18 43.4	+39 35		0851	0909	18m / 60m	29m W					6.1	A4							
	ε² Lyr	18 43.4	+39 35		0913	0921	8m / 10m	41m W					4.8	A3+A5							Location [illegible]
	β' Lyr	18 49.0	+33 20		0924	0926	1.5 / 2m	43m W					3.3	Bpe							
	γ Lyr	18 57.8	+32 39		0928	0930	1.5 ✓	35m W					3.2	B9 III							
	η Lyr	19 12.7	+39 06		0933	0936	3m / 5m	20m W					4.2	B2							
	η Cyg	19 55.2	+35 00		0938	0947	9m / 10m	5m E					5.0	K0							
	52 Cyg	20 44.4	+30 37		0950	1001	11m ✓	41m E					5.25	K0							
	23 Vul	20 14.5	+27 43		1003	1004	2m ✓	12m W					5.8	K3							
1100	J Vel	10 19.8	-55 54	3/4	2300	2302	2.5m ✓	1h 15m E	1.5 clear				4.4	B3						[illegible]	T=13°C calm H=36%
	1876 Car	10 16.1	-61 11	MAY 1976	2304	2313	9m / 6m	57m E					4.9	K5						E Max	HR 4050
	"	"	"	"	2314	2319	5m ✓	52m E	"				"	"							
	-54° 3474	10 18.5	-54 53		2323	2341	18m ✓	45m E	"				6.1	CK							HR 4063
	"	"	"		2341	2349	8m / 18m	22m E	"				"	"							
	s Car	10 26.8	-58 35		2351	2353	25m ✓	26m E	"				4.1	F0							HR 4114
	κ Car	10 34.4	-57 24		2355	0016	21m / 18	13m E	"				6.1	K3							HR 4159

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	~~P~~ Car	10 34.7	-57 24	3/4	0016	0026	10m 15m	4m E	1.2"	2.90	50μ 1.2	6+ 4-45	6.1	gK3	NeA	60s	NONE	II a C	M-SCOPE N 15mm g May		HR 4159
	t Car	10 37.6	-59 02	MAY 1976	0027	0047	20m ✓	15m E	1"-2"				6.1	cK5							HR 4177
	"	"	"		0047	0057	10m 20m	2.5m W	1"				"	"							"
	x Vel	10 38.1	-55 27		0059	0107	7m 5m	34m W	"				5.3	G2							HR 4180
	u Car	10 52.3	-58 42		0109	0114	5m 4m	28m W	"				4.7	KC							HR 4254
1101	260 g Car	1107.3	-58 49	"	0116	0122	6m ✓	30m W	"	"	"	"	5.2	GO	"	"	"	"	"	"	HR 4337
1101	π Cen	11 19.6	-54 20		0132	0134	1m ✓	20m W					3.7	B5							
	δ Cen	12 06.8	-50 33		0137	0137	25s ✓	2.5m E					2.4	B2							
	ζ Cen	12 10.1	-52 12		0140	0142	80s 90s	23m E					3.8	B4							
	ε Cru	12 13.5	-58 35		0144	0145	30s ✓	23m E					2.6	B2							
	σ Cen	12 26.4	-50 04		0146	0148	80s 90s	32m E					3.7	B2							
	γ Cru	12 29.5	-56 57		0154	0157	80s ✓	28m E	1" Clear				3.2	M3							
	β Cru	12 46.0	-59 32		0159	0200	6s ✓	41m E	"				1.0	B0							
	μ¹ Cru	12 52.8	-57 01		0206	0210	60s ✓	38m E	"				3.8	B3							
	μ² Cru	"	"		0214	0217	3m ✓	30m E	"				5.0	B2							
	ε Cen	13 38.0	-53 19		0222	0223	1m 40s	1h 9m E	"				2.1	B1							T=13°C H=34%
	M Cen	13 44.7	-51°17		0227	0237	10m ✓	1h 2m E	"				5.6	G9							wind 15 mph
	υ Cen	14 18.2	-56°15		0242	0245	3m ✓	1h 27m E	"				4.4	B5							HR 5352
1102	J Cen	13 20.7	-60 50	"	0255	0258	3m ✓	15m E	"				4.4	B5							HR 5035
	m Cen	13 22.0	-64 23		0304	0311	6m ✓	3m E	"				5.4	G5							HR 5074
	244G Cen	13 55.5	-63 32		0319	0328	9m 18m	21m E					5.8	K4							HR 5241
	β Cen	14 01.7	-60 14		0338	0338	3s 2s	17m E					0.7	B1							
	α¹ Cen	14 37.5	-60 43		0346	0346	3.6s 5s	40m E					0.7	G2							HR 5459
	α² Cen	"	"		0350	0350	12s 40s	38m E					2.1	G2							HR 5460
	α Cir	14 40.1	-64 51		0402	0403	70s ✓	39m E					3.4	F0							HR 5463
	σ Lup	14 30.6	-50 20		0408	0410	1.5s 2.5	16m E					4.2	B2							
	ρ Boo	14 30.5	+30 30		0422	0434	12m 6m	8m W	"				4.9	K3							
	"	"	"		0437	0443	6m ✓	19m W					"	"							
	δ Boo	14 30.9	+38 26		0446	0448	1m 15s	24m W					3.2	A7							
	υ Boo	15 14.3	+33 26		0450	0454	4m ✓	14m E					4.4	G8							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	ζ Boo	15 14.3	+33 26	3-4	0455	0458	3m / ✓	14m E	1.2" / 1.0	2.90	50μ / 1.2	67 / 4.45	4.4	G8	Ne A	60s	NONE	IIaC	M-S 6½F	~1	
1103	μ' Boo	15 23.4	+37 29	MAY 1976	0505	0508	2.5m / 5m	9m E	1.5"				4.6	FC					15 m	5 May.	
	θ CrB	15 31.7	+31 28		0510	0512	2m / ✓	24m E	"				4.1	B7							
	χ Her	15 51.6	+42 32		0514	0524	10m / 20m	21m E	"				5.1	F9							
	α Boo	14 14.3	+19 20		0528	0528	1m 3s / 12s	1m 55m W					1.2	K2							
	ξ Boo	14 39.7	+13 51		0531	0534	4m / 2m	1h W	"				4.9	A2							
	ϵ Boo	14 43.5	+17 05		0539	0550	11m / ✓	1h 12m W	"				5.6	K0							
	ξ Boo	14 50.0	+19 13		0552	0559	7m / ✓	1h 16m W	"				5.3	G8							
	ι Ser	15 46.2	+19 46		0602	0605	2m / ✓	31m W	1.2"				4.6	A1							
	β Ser	15 44.8	+15 31		0607	0610	1.5m / ✓	32m W	"				3.7	A2							
	κ Ser	15 47.4	+18 14		0612	0633	22m / +10m	1h 30m W	"				6 i	gm 1							
	γ Ser	15 55.1	+15 46		0635	0637	3m / ✓	1h 41m W	"				4.3	F6							
	δ Her	16 20.6	+19 13		0640	0642	2m / ✓	28m E					4.0	A1							
	ω Her	16 24.0	+14 06		0643	0645	2m / 2.5	28m W					4.6	Ap							
1104	ι Cph	16 52.6	+10 13	"	0654	0656	2m / ✓	9m W					4.2	B8							
~~1104~~	α Her	17 13.3	+14 25		0658	0703	0m / 4m	3m W					4.5	M5							
	α Cph	17 33.5	+12 35		0706	0706	22m 2s / 30s	20m E					2.3	A5							
	73 Her	17 58.7	+16 45		0707	0719	10m / 15m	33m E					5.6	K0							
	η Her	17 56.6	+29 15		0722	0726	4m 2s / ✓	23m E					4.7	G7							
	103 Her	18 06.4	+28 45		0729	0731	2m / 1.5	28m E					4.0	B9							
	102 Her	18 07.5	+20 49		0734	0737	2m / 25	25m E					4.0	B2							
	101 Her	18 22.7	+21 45		0738	0745	7m / ✓	31m E					5.1	K2							
	111 Her	18 45.7	+18 01		0747	0750	3m / 4m	49m E	"				4.4	A3							
	ϵ AQL	18 58.3	+15 02		0754	0801	7m / ✓	51m E					5.0	K2							
	110 Her	18 44.4	+20 31		0804	0808	4m / ✓	29m E	1.5" clear				7.7	F6							
	113 Her	18 53.5	+22 36		0812	0821	9m / ✓	25m E					5.3:	G0+A3							
1105	ζ^1 Lyr	18 43.7	+37 34		0829	0833	3m / 4m	5m E	"				4.6	Am							
	ζ^2 Lyr	18 43.7	+37 34		0835	0847	12m / 30m	9m W					6.0	F0							
	δ^1 Lyr	18 53.5	+36 52		0850	0857	7m 10m / 0m	0m W	"				5.3	B3							
	δ^2 Lyr	"	"		0859	0923	24m / ✓	37m W	2" clear				7.0	m4							

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1165 (cont)	δ^2 Lyn	18 53.5	+36 52	3/4	0923	0935	12m / 24m	49m W	2" clear	2.96	50µ/1.2	69/1445	4.3	K4	Iron	60"	Neon	103a-F	IIIa-F		
	θ Lyn	19 15 3	+38 05	May 1976	0939	0952	12m +20	41m W					5.4	K0					15sec		
	1 Vul	19 14.9	+24 26		0955	0959	4m /	5m W	/				7.5	B3							
	41 Cyg	20 28 2	+30 16		1003	1007	3m /	15m E	/				7.4	F5							
	C Cyg	20 45.0	+33 51		1009	1011	2m / 25m	27m E	/				3.5	K0							
	7 Cyg	20 46.2	+36 23		1015	1020	5m / 2.5	6m E	/				4.4	B5							
	ζ Del	20 35.9	+14° 54'		1023	1027	3m /	6m	/				4.3	A3							
	β Cyg	20 36.1	+14 29		1029	1031	2m /	2m W	1.5 / clear				4.0	F5							
	α Vul	20 58.2	+15 48		1033	1035	2m / 1m	4m W	/				3.7	B9							
1166	ζ Pup	08 02.4	-39 56	4/5	2254	2255	15s /	1h 2m W	1" clear	/	/	/	2.0	O5f	/	/	/	/	/		Eng.
	γ Car	11 11.3	-60 09	May 1976	2305	2305	5m /	1h 58m E	1.5 /				2.1	F6							
	λ Cen	11 39.4	-62 51		2310	2312	1m 30s /	2h 13m E	2" /				3.1	B9							
	Tr Mus	11 49.2	-66 34		2315	2317	2m /	2h 18m E	/				3.8	A7							
	65 G. Cen	11 45.1	-61 01		2320	2320	6m /	2h 16m E	1.5 /				5.0	G3							HR4522
	μ Mus	11 46.8	-66 39		2327	2349	20m /		1.5 /				5.7	K3							
	"	"	"		2350	2358	5m / 20m	1h 40m E	1" /				"	"							
	ι Cen	11 48.2	-63 37		2401	0003	2m /	1h 35m E	1.5 /				4.1	B3							
	σ Cen	11 61.5	-63 09		0006	0007	3m /	1h 42m E	1.5 /				4.6	Am							
	η Cen	12 05.3	-64 27		0012	0016	3m /	1h 41m E	/				4.5	F0							
	ϵ Mus	12 15.9	-67 48		0018	0046	28m / 17m		"				6.1	M5							
	"	"	"		0046	0102	17m /	1h 6m E	/				"	"							
	ζ Cru	12 16.8	-63 50		0103	0106	1.5 /	1h 1m E	/				3.9	B3							
1167	ϵ Cru	12 19.7	-60 14	"	0119	0129	10m 6m	41m E	/	/	/	/	5.0	K3	/	/	/	/	/		
	"	"	"		0130	0136	6m /	35m E	/				"	"							Merged under scope
	κ Cru E*	12 24.9	-62 58		0215		22m 15s / 13						1.8:	B1							
	κ Cru W	"	"			0221	5m 5s / 10	5m W	/				2.0	B?							
	α Mus	12 35.4	-68 58		0224	0225	27s / 35s	10m E	/				2.5	B3							
	ι Cru	12 43.9	-66 47		0228	0244	12m /	16m W	/				5.7	K1							
	B Mus*	12 44.4	-67 57		0247	0250	17m 5s /	10m W	"				2.9	B3			Close double w 1"				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R A 19 70	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1107	i Leo	11 22 4	+10 42	4/5	0304	0310	3m ✓	1h57mW	1.5 clear	2.9C	50µ/1.2	6+/445	4.3	F2	NeA	60s	NeNe	IIa-C	M-S		increasing wind ~10-15 12°C H=36% 5gm cirrus in longer S
CONT	β Crv	12 32.3	+41 31	MAY	0314	0323	8m 12m	1h1mW	"				4.9	G0V					67°F		
	α² CVn A	12 54.6	+38 29	1976	0327	0328	1.5s ✓						2.8	B9p					15min		
	" B	"	"		0329	0347	18m ✓	1h3mW	"				5.9	F0							
	20 CVn	13 16.2	+40 44		0351	0358	6m 10m	53mW	"				5.0	F0p							
1108	δ Cet	14 21.9	−83°32'	"	0419	0431	12m ✓	16mW	"	"	"	"	5.6	K1	"	"	"	"	"		
	α Aps	14 44.1	−78°55'		0436	0454	18m 9	19mW					5.25	K5							
	"	"	"		0454	0503	9m ✓	28mW	"				"	"							
	α Vir	13 23.6	−11 00		0528	0529	6s 9s	2h15mW	"				0.7	B1							
	τ Vir	14 00.1	+01 41		0536	0539	3m ✓	1h49mW					4.4	A3							
	109 Vir*	14 44.7	+02 01		0542	0544	1.5m 1.5m	1h9mW	1" clear				3.7	A0V							
	ι Vir	14 14.4	−05 51		~~0558~~	0601	2.5m 3m	1h57mW	"				4.5	F7							
	μ Vir	14 ~~55.6~~ 41.5	−05 32		0604	0608	2m ✓	1h34mW	"				4.3	F3							
	16 Lib	14 55.6	−04 14		0608	0611	3m ✓	1h25mW	"				4.8	F0							
	κ Vir	14 11.3	−10 08		0614	0623	9m 8		"				5.5	K3							
	"	"	"		0614	0618	4m 8	2h28mW	"				~~4.2~~	"							
	1 Vir				0632	0634	2m ✓	2h27mW	"				4.6	Am							
1109	α² Lib	14 49.2	−15 55	"	0642	0643	30s ✓	2h5mW	"	"	"	"	2.9	K1II3m	"	"	"	"	"		
	116 Vir	15 01.4	+2 12		0647	0650	2m 8m	2h5mW	"				5.4	K0							
	α Ser*	15 42.8	+6 31		0658	0704	3m 1.5	1h31mW	1.5"				3.8	K2IIIa							wind increasing ~7
	η Ser	15 ~~45~~ 50	+7 27		0707	0713	6m ✓	1h38mW					5.0	G0V							
	ε Ser	15 49.3	+4 34		0715	0717	1.5m ✓	1h38mW					3.7	Am							
	λ Oph	16 29.4	+2 03		0719	0723	2m 1.5	1h4mW					3.8	A1							clear & cirrus part not registered
	κ Oph	16 56.2	+9 25		0726	0729	3m 2.5	44mW					4.3	K2III							
	β Lib	15 15.4	−9 16		0732	0735	30s 40s						2.5	B8							
	μ Ser	15 48.1	−3 20		0735	0737	1.2m 1.2	2h W					3.5	A0							
	ν Oph*	16 12.8	−3 37		0740	0752	8m 4m	1h49mW					4.3	M1							
	ε Oph	16 16.7	−4 37		0754	0756	2m 5s ✓	1h58mW					3.2	K0							
1110	σ Oph*	17 25.0	+4 10	"	0811	0830	12m 16	1h16mW	"	"	"	"	5.8	K3	"	"	"	"	"		
	β Oph	17 42.0	+4 35		0834	0836	2m ✓	1h5mW					3.9	K2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A. 19 20	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1110	γ Oph	17 46.4	+02 43	4/5	0841	0843	1.5 ✓	1h 7m W	1.5 cirrus	2.90	50µ/1.2	67/4.45	3.8	A0 V	NEA	60'	N.NE	IIa-O	M-1	N-1	
(cont)	67 Oph	17 59.1	+02 56	MAY	0846	0849	2m 2m	1h 9m W	" "				4.0	B5 IV					E1°F		
	27 H. Oph	17 25.0	−5° 04'	1976	0857	0905	7m 9m	1h 31m W	1.5 "				4.9	F3					15 min		w thing cirrus. HR 6293
	ϵ Oph	17 36.2	−8° 06'		0908	0922	14m 7m	1h 37m W	/				4.7	B8							2 ring cirrus
	α CrA	19 07.4	−37 57		0928	0931	3m ✓	34m W	1.2 "				4.1	A2							~1½ ring cirrus
	β CrA	19 08.0	−39 23		0935	0951	16m 25		1.5 cirrus				5.3	G3							Note ring for thick cirrus thin cirrus cirrus
	"	"	"		0952	1003	9m ✓		/				"	"							
	"	"	"		1004	1009	5m 15	1h 13m W	/					"							
	σ Sgr	19 57.8	−35 22		1013	1017	3m 2						4.2	B3							cirrus, poor focus
	γ Sgr	20 44.3	−25 23		1020	1025	4m ✓	4m E	1.5 cirrus				4.6	F5							
																					wind 15-20
1111	η Vel	10 13.5	−41 58	5/6	2325	2328.5	3.5 5	32m E	1" cloudy	2.90	50µ/1.2	67/4.45	3.9	A2	"	"	"	"	"		T=13°C H=36%
	"	"	"	MAY	2374	2351	7m 10	10m E	1.5 through cirrus ~2m				"	"							cirrus 2-5m
	ρ Vel	10 36.0	−48 04	1976	2355	0002	2m 3.5	21m E	" through thick cirrus				4.1	F2+A3							
	ν Vel	10 45.5	−49 16		0007	0011	4m 6m	20m E	" thin cirrus				3.6	G5							
	23 Vel*	10 58.8	−42 04		0120	0142	12, 5, 3, 5m	52m W	" variable cirrus				4.5	A2							HR 4293
	B Cen	11 49.6	−45 00		0146	0201 0205	3m +10s	1h 28m W	" very thick cirrus				5.7	K5							Hazy and hydrated
												5/6									F1 C 1 63%
1112	ϵ Cen	12 36.1	−48 23	6/7	0352	0355	2m ✓	1h 37m W	2"				3.4	A2							
	γ Cen	12 39.9	−48 48	May	0358	0400	2m 1m	1h 37m W	"				2.2	A0					not reported		clouds from 0.3,1" ring at M.
	w Cen*	12 40.9	−48 39	1976	0404	0408	16, 10 ✓	1h 38m W	"				5.8	K1							
	ϵ Cen*	12 51.4	−48 47		0433	0501	16, 10 ✓	1h 52m W	2-3"				5.7	K2							
	n Cen	12 57.8	−40 01		0504	0509	5m ✓	1h 33m W	" "				4.5	A7							
	ξ^2 Cen	13 05.1	−49 45		0514	0517	2m ✓	2h 3m W	3' cirrus				4.1	B2							
	ξ^1 Cen	13 02	−49 22		0519	0527	2m ✓	2h 45m W	"				5.0	A0							
	V Cen	13 47.7	−31 42		0529	0531	2m ✓	2h 1m W	"				3.2	B5							
	μ Cen	13 47.8	−42 29		0533	0535	2m ✓	1h 55m W	"				3.0	B2							
	ζ Cen	13 53.2	−47 09		0538	0543	4m 5m ✓	2h 5m W	"				2.3	B6							
	η Cen	13 56.4	−41 57		0543	0546	2m 5 ✓	1h 47m W	"				2.6	B2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1113	υ^1 Cen	13 56.8	-44 39	4/7	0611	0614	3m ✓	2h36mW	3" clear	2.90	50µ 1.2	4/4.8	3.7	B2	NeH1	60s	NeAr	IIa-O IIIa-J .5 mm.			
	υ^2 Cen	13 59.8	-45 28	May	0617	0624	7m ✓	2h42mW	"				5.0	F7							
	χ Cen	14 04.2	-41 02	1976	0627	0631	4m ✓	2h44mW	"				4.15	B3							
	ι Lup	14 17.5	-45 55		0634	0636	2m ✓	2h36mW	"				3.4	B3							
	τ^1 Lup	14 24.2	-45 05		0638	0640	2m ✓	2h31mW	"				4.4	B3							
	τ^2 Lup	14 24.2	-45 15		0646	0653	7m ✓	2h37mW	"				4.8	F7							
	η Cen	14 33.6	-42 02		0657	0658	30s 40s ✓	2h42mW	2" "				2.2	B3							
	ζ Lup	14 35.9	-45 18		0700	0703	2m 4m ✓	2h44mW	2" "				3.4	B5							
	α Lup	14 39.9	-47 16		0705	0706	25s ✓	2h43mW	"				2.1	B1							
	σ Lup	14 49.7	-43 27		0709	0712	2m ✓	2h40mW	2-3" clear				4.2	B6							
	β Lup	14 56.6	-43 00		0715	0716	55s ✓	2h37mW	"				2.5	B2							
	κ Cen	14 57.2	-41 54		0715	0719	1m ✓	2h40mW	"				2.4	B2							
					c																
1114	ν Vir	16 01.4	-49 09	11	0731	0746	15m ✓	1h53mW	2" "	"	"	"	3.6	G5	"	"	"	"	"	"	
	ζ^2 Sco*	16 52.5	-42 19		0749	0816	19m ✓	1h42mW	3" clear				5.0	K5							
	η Sco	17 10.6	-43 12		0819	0822	2m ✓	1h27mW	"				3.7	F2							
	κ Sco	17 29.5	-44 51		0825	0827	1m 40s ✓	1h16mW	"				2.5	B2.5							
	σ Sco	17 33.4	-46 29		0830	0838	7m 5m ✓	1h22mW	"				4.6	A0							
	δ Sco	17 35.2	-42 59		0842	0844	1m 50s ✓	1h27mW	"				2.2	F0							
	ι Sco	17 45.5	-40 07		0848	0852	3m 25s ✓	1h21mW	"				3.5	F2							
	θ Sco	19 06.3	-40 33		0902	0924	21m ✓	55m W	"				5.7	K1							
	β^1 Sgr	19 20.5	-44 31		0926	0929	3m ✓	27m W	"				3.8	B8							
	β^2 Sgr	19 21.1	-44 51		0932	0937	5m ✓	35m W	"				4.6	F1							
	ζ Sgr	19 21.8	-40 40		0940	0943	3m ✓	40m W	"				3.9	B9							
	σ Sgr	19 33.2	-41°57'		0945	0958	13m ✓	24m W	"				5.2	K0							
1115	ζ Aql	21 43.2	-33 10		1011	1017	5m ✓	1h17mE	"				-.3	A0							
	χ Aqr	21 52.1	-37 30		~~1019~~ 1021	1021	2m 1m ✓	1h13mE	"				3.9	G8							
	λ Aqr	22 04.3	-39 41		1024	1040	16m ✓	1h17mE	"				5.8	K2							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

Fgi = Finguelli

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1116	R Car	9 31.5	-62 34	8/9	2308	2345	3m 22m	34m W	1.5 clear	-296	50μ 1.2	67/445	6:	M5	NeA	Gc	NONE	II a C	M-5		15°C, cool -10-20 H=30%
	"	"	"	Mary	2341	2350	13m 22m	55m W	1.5-2"				"	"					15mm		
	p Car	10 31.0	-61 32	1976	2354	0000	5m 60s	55m W	1.5				3.2	B5					C14F		
	A Cen	11 34.4	-62 51		0005	0005	1m ✓	1h 4m W					3.1	B9							
	ι Cru	12 24.9	-62 56		0012	0013	10m 12s	1h 19m W	2" clear				1.1	B1							
	β Mus	12 44.4	-67 57		0017	0019	1.3 1.3						2.9	B3							
	"	"	"		0021	0023	40s 60	1h 50m W	2" clear				"	"							
	C Cen	13 38.6	-53 19		0034	0037	3m ✓	2h 30m W	"				2.1	B1							
	294 G. Cen	13 55.5	-63 32		0046	0051	5m 22	2h 20m W	1.5 "				5.8	K4							WE 5241
	ε Cen B	14h 37.5	-60 43		0120	0124	1m 40s		1.5 "				2.1	K3							
	" B	"	"			0124	10s ✓	2h 26m W	"				0.7	G2							
	β Hya	21 51.4	-33°44'		0134	0138	3m 4s	2m E	" clear				4.2	K0							
1117	β Hya	"	"	"	0140	0146	2m ✓ 5s	20m W	"	"	"	"	1	"	"	"	"	"	"	"	Pol + Fgi
	ε Cen	13 18.4	-36 33		0158	0201	36 ✓	6h 56m E	1.5 clear				2.3	A2 II							
	d Cen	13 29.3	-39 15		0208	0215	4m ✓	50m E					5.1 5.0	G8							
	1 Cen	13 44.0	-32 54		0222	0225	3m ✓	53m E	1.2 clear				4.6	F2							
	2 Cen	13 47.7	-34 18		0231	0301	2m 3m	26m E	1.5 clear				6.4	A Mb							
	3 Cen A	13 52.1	-32 57		0305	0309	2m ✓	1m E	2" mist				4.0	B5 Vp							
	"	"	"		0313	0323	3m ✓	"	1.5 clear				"	"							
	3 Cen B	"	"		0313	0325	12m ✓	1m W	1.2 clear				6.0	B8 V							
	θ Cen	14 04.9	-36 13		0322	0325	3m	1m W	2" clear				5.07	A0 III-IV							
	"	"	"		0345	0344	4m ✓	4m W	1.5 clear												
	ν Cen	14 18.7	-37 15		0347	0349	2m ✓	4m E	1.5 clear				4.00	A0 IV							
	ω Cen	14 21.2	-39 23		0352	0355	3m ✓	0	" "				4.21	B3 V-B8 II var							
	k Cen	14 40.1	-37 40		0358	1406	2m ✓	14m E	1.5 clear				3.82	B3 V							
1118	37 ψ Cen	14 41.2	-35 03	"	0405	0409	15m 9m	7m E	1.5 clear	"	"	"	5.31	K5 III							Pol + Fgi HR 5485
	? Lup	15 16.0	-30 02		0423	0434	11m ✓	1m E	1.2 clear				5.44	g K0							
	? Lup	15 19.9	-36 09		0436	0447	11m ✓	7m E	2" clear				5.08	K5 III							
	"	"	"		0447	0454	7m ✓	1m W	1.5 clear				"	"							
	φ² Lup	15 21.2	-36 45		0501	0504	3m 45	1m W	2				4.37	B5 V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS	CAM FOCUS	SLIT	GRATING TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	ENGL	DEV	OBS	REMARKS
1118	R Lup	15 23.4	-38 38	8/M	05 06	05 12	4m ✓			2.10	50μ/1.2	67/445	7.00	A0 IIe	NeA	60s	NONE	JE=0	M-S		
	ν¹ Lup	15 27.1	-34 19	MAY	05 12	05 20	2m ✓	12m W	.5				5.00								
	λ Lup	15 47.0	-33 32	1976	05 26	05 33	2m ✓	5m W	.5				3.8	Ap							
	η Lup	15 58.1	-38 19		05 31	05 38	2m ✓	1m W	.5				3.22	B2.5 IIIe							
	ε Lup	16 04.6	-36 43		05 35	05 37	2m ✓	m W	.5				3.4	B2 IVn							
	N Sco	16 11.4	-19 38		05 40	05 42	2m ✓	21m W	.5				4.05	B2 IV							
	11 Sco*	16 31.4	-25 12		05 44	06 20	2m ✓	10m W					5.2	B1 V							
1119	σ Sco	16 21.2	-25 14	"	06 27	06 31	2m 1m ✓	8m W	"	"	"	"	2.9	B1 III	"	"	"	"	"	"	
	μ¹ Sco	16 49.8	-38 00		06 33	06 35	30s ✓	11m W	.5				2.8	B1.5 V							
	μ² Sco	16 50.3	-38 02		06 38	06 42	50s ✓	18m W	.5				3.2	B2 V							
	ε Sco	16 50.7	-34 16		06 45	06 46	24s ✓	16m E	"				2.5	B2 IV							
	λ Sco	17 31.6	-37 05		06 48	06 49	10s ✓	17m E	"				1.4	B1 V							
	G Sco	17 34.5	-38 37		06 52	06 53	10m ✓	3m E					5.4	K0 III							
	ν Sco	17 44.4	-39 01		06 56	06 57	25s ✓	2m E					4.2	B2 V							
	ζ¹ Sco	17 [illegible]	-37 [illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	γ Sgr	18 [illegible]	[illegible]		07 16	07 18	2m ✓	18m W					3.17	K0 III							
	η Sgr	18 15.6	-36 46		[illegible]	[illegible]	6m ✓	[illegible] W					4.62	B8 III							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible] W					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible] N					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
1120	σ Sgr S	[illegible]	[illegible]	"	08 20	08 42	[illegible]	[illegible]	2.5				6.8	F5							
	ω Sgr	18 43.1	-29 35		[illegible]	[illegible]	[illegible]	4m 14m 15m W					5.1	F8							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	F5 p							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	22m ✓	[illegible] W					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]							
	ζ¹ Cyg	19 29.5	+29 54		[illegible]	[illegible]	[illegible]	[illegible]					4.2	K3+V3							
	53² Cyg	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					5.6	G8							
	51 Cyg	[illegible]	[illegible]		1007	1013	6m ✓	4m 14m W					4.2	K3+B							
	13 Vul	19 52.2	+24 00		1016	1020	[illegible] ✓	18m W					4.0	B0							
	15 Vul	19 59.1	+27 40		1024	1028	[illegible]	[illegible]					4.7	Am							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

T = 46°F = 11°C
H = 37%

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB.	EMUL	DEN	OBS.	REMARKS
1121	ε UMi C	9 32.4	+82 32	MAY	23 52	00 04	12m ✓	1h 04m W	1" clear	2.90	50μ 1.2	67 / 445	5.5	G8 V	Neon	60s	NONE	IIIa-J	IIIa-S	2.0	
	ν Hya	10 48.4	-16 02	9/10	00 09	00 13	4m	3m E	3/4 turn				7.4	K3 III					53mm		
	ζ UMa AB	11 16.6	+54 42	MAY	00 18	00 21	5m	4m 24s E	1 turn				9.4	dG5					57°F		3" double
	ζ UMa A	"	"		00 [illegible]	00 32	3m ✓	" 12s E	" "												triad in
	ζ UMa B	"	"		00 32	00 37	3m	7m " 07s E	" "												dec
	Spica	13 24.4	-10 57		00 [illegible]	00 51	1m ✓	3m 34s W	" "				0.4	—							
	ε UMa	11 16.9	+55 15		00 57	01 00	3m	5m " 15s W					4.9	K5 III							
	γ Crv	12 14.3	-17 23		01 05	01 06	1m 2.5	36s E					2.5	B8 III							
	ζ Vir A	13 46.1	-1 17		01 10	01 11	1m ✓	57m E					3.1	F6 II							4" double
	ζ Vir B	"	"		01 11			5					"	"							overlap
2	γ Vir A	12 14.3	-17 23		01 13	01 14	1m	54m E					3.1	F6 V							
					01 14																Overlap
	γ Vir A	12 14.3	-17 23		01 15	01 16	1m ✓	52m E	1" clear				3.1	F6 V							
	γ Vir B	"	"		01 16	01 17	1m ✓	51m E	" "				"	"							
	ε UMa	12 54.6	+55 58		01 22	01 40	18m ✓	35m W	"				1.7	G8 V							
1122	HR 5171 A	13 45.8	-6 27	"	02 28	03 50	88m ✓	44m W	5 turn	"	"	"	8.1	G8 IV-V	"	"	"	"	"	"	
	υ Boo	13 48 C	+15 57		04 01	04 14	13m ✓	59m W	"				5.3	K5							
	ξ Boo	14 30.9	+38 26		04 19	04 21	2m 1.5		1.5				3.2	A7 III							
	δ Boo	14 33.4	+19 52		04 24	04 29	5m ✓	29m W	1.5 turn				3.8	F2 V							
	ζ Boo AB	14 35.7	+13 51		04 34	04 36	2m ✓	29m W	1.5 turn				4.6	A2							
	ε Boo	14 43.2	+27 12		04 40	04 42	1.5 2.5	32m W	"				3.5 M								4" double not in slit
	η Boo	13 53.4	+37 25		04 47	04 53	6m ✓	2m W	"				2.6	F0							
	α CrB	15 33.4	+26 49		04 56	04 58	40s ✓	2m E	"				2.2	A0 V							
	ε Ser	15 40.2	+19 46		05 02	05 05	3m ✓	2m E	"				4.6	A2 V							
	R Ser	15 47.4	+18 14		05 07	05 18	11m 4m	65m W	"				6.1	M1							
	π Hya	14 04.3	-26 32		05 22	05 25	5m ✓	1h 55m W	1.2				2.4	K2							
	38 Hya	14 48.5	-27 50		05 29	05 38	8m 12m	2m W	"				5.8	K4							
	η Cyg AB	19 03.1	-46 58		05 42	05 43	1m ✓	1h 5m W	"				4.0	B5							
1123	[illegible]	15 06.8	-45 10	"	05 11	06 [illegible]	2.5	1h 40m W	1.5 turn	"	"	"	3.9	B3	"	"	"	"	"	"	
	ζ Lib	15 10.5	-19 41		06 17	06 20	3m	1h 44m W	"				4.4	kA							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1123	δ Lup	15 19.4	−40 32	9/10	0629	0631	1m	1h44mW	1.5 clear	2.90	50µ/1.2	6+/4.45	3.0	B2	NeA	60s	NONE	IIa-O	M-J		
(Cont.)	κ Lib	15 33.8	−14 41	May	0635	0640	5m	1h39mW	" "				4.9	G8					67°F		
	μ Ser	15 48.1	−3 20	1976	0643	0644	1m	1h29mW	" "				3.5	A0					15mm		
	ε Lib	15 52.1	−16 39		0647	0653	6m	1h34mW	"				5.2	K0							
	48 Lib	15 56.5	−14 12		0655	0659	3.5	1h35mW	"				4.7	Bp							
	ξ Sco	16 02.7	−11 18		0702	0708	3m	1h38mW	1.5				5.0	F5							
	β¹ Sco	16 03.7	−19 43		0712	0713	22s	1h43mW	" "				2.6	B0.5							
	β Sco C	"	"		0716	0722	6m	1h53mW	" "				4.9	B2							
	β Sco C	"	"		0722	0725	3m	1h48mW	" "				7.9	B2							
	ν Sco AB	16 10.2	−19 23		0728	0730	2m	1h53mW	" "				4.0	B2 IV-V							
	γ Oph	16 22.3	−19 38		0732	0741	9m	1h51mW	" "				5.5	K0 III							
1124	α Sco	16 27.6	−26 22		0747	0747	30s	1h53mW	" "				1.8	M1 Inbr							
	φ Oph	16 29.4	−16 33		0749	0755	3m	1h51mW	" "				5.2	A8 III							
	ξ Oph	16 35.5	−16 30		0756	0757	30s	1h25mW	" "				2.6	O9.5 V							
	20 Oph	16 48.2	−10 44		0751	0803	1m	1h18mW	" "				5.1	F5 III-IV							
	η Oph	17 08.7	−15 41		0805	0807	18s	1h15mW	" "				2.5	A2.5 V							
	2 Ser	17 19.1	−12 44		0809	0811	2m	1h25mW	" "				4.4	A1 V							
	ξ Ser	17 35.9	−15 23		0813	0814	1m	1h12mW	" "				3.8	F0 IV							
	σ Ser	17 37.7	−12 52		0816	0818	90s	1h11mW	" "				4.3	A2 V							
	δ Sct	18 27.5	−14 35		0820	0822	2m	1h27mW					4.7	A3 V							
	ε¹ Sgr	19 19.9	−17 54		0824	0826	90s	0h21mE					4.2	F0 IV							
	ζ Sgr	19 26.0	−16 01		0828	0830	2m	0h17mE					4.6	A0 p							
	α¹ Cap	20 16.0	−12 36		0832	0837	5m	1h06mE					5.3	A3 Vn							
	α² Cap	20 16.4	−12 38		0837	0841	2½m	1h02mE					4.5	A7 III							
1125	3 Cap	20 19.3	−14 53		0845	0850	1m	1h06mE					3.8	F8 I+A0							
	ξ Cap	21 04.3	−17 21		0848	0850	1½m	1h41mE					4.0	A5 V							
	ν Aqr	21 08.0	−11 30		0852	0902	10m	1h33mE					5.4	G8 III							
	i Cap	21 20.6	−16 58		0904	0911	6m	1h38mE					5.2	G8 III							
	ε Cap	21 35.4	−19 36		0912	0914	90s	1h58mE					4.4	B3 V p							
	γ Cap	21 38.4	−16 48		0916	0917	1m	1h48mE					4.0	A1m							

W 112 focus 3.00, 3.05, ... 3.70

focus = 340

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
11.25	δ Cap	21 45.4	-16 16	MAY	09 19	09 21	40s	1h 51m E	1" clear	2.910	50μ / 1.20	67 / 4.145	3.2v	A6m	NeA	60s	NONE	II-n C	M-S	2.9/1 F2i	
cont.	ζ Aqr	22 48.0	-13 45	9/10	09 23	09 38	15m	2h 5m E	1.5"				5.6	M1 III					67°F		
	ζ Aqr	"	"	1976	09 38	09 45	7m	2h 21m E	"				11	"					15 mm		
	~~λ Aqr~~	22 51.0	-7 44		09 55	10 05	6m	2	1.5"				5.4	M2 III							
	λ Aqr	"	"		10 06	10 12	6m	2h 3m E	1.5"				"	"							
	36 Cap	21 27.0	-21 56		10 19	10 28	9m	26m E	"				5.4	G5							
	δ Cap	21 25.0	-22 33		10 37	10 37	6m	15m E	"				4.7	G5 p							
11.26	~~170 5834~~	~~7 22.0~~	~~-24 41~~	MAY						2.910	50μ / 1.20	67 / 4.145	~~8.5~~	G5 Ib	NeA	60s	NONE	II-n C	M-S	n.i + F2i	
	40 Lac	10 18.	+19 34	10/11	23 38½	23 46	7m	4m W	1.5" clear				5.3	F6					67°F		
	56 UMa	11 21.	+43 34	1976	23 53	23 25	32m	26m E	1.5"				6.0	G8 II					15 min		
	γ¹ Lac B	10 18.3	+20 00		00 29	00 33	4m	52m W	"				3.1	KC III p							
	46 LMi	10 51.6	+34 23		00 35	00 41	6m	25m W	"				4.9	KC III-IV							
	ε Car	10 26.8	-56 35		00 50	00 53	90s	1h 2m W	1.5"				4.1	F0							
	κ Vel	11 38.1	-55 27		01 02	01 07	5m	1h 4m W	"				5.3	G2							
	θ Car	10 41.9	-64 14		01 12	01 13	30s	1h 7m W	"				2.5	O9.5							
	ζ Vel	10 13.5	-41 58		01 16	01 20	3m	1h 3m W					3.9	A2							
	ψ Vel	10 43.5	-49 16		01 25	01 28	1m	1h 16m W	"				3.6	G5							
	ρ Cen	12 10.1	-52 12		01 33	01 35	1m	0m	"				3.8	B4							
	δ Cen	12 26.4	-50 04		01 39	01 41	1m	10m E	1.2"				3.7	B2							
	3 C Vn	12 32.3	+41 31		01 46	02 01	15m	7m E	1.5"				4.9	G1 C V							
	31 Com	12 50.1	+27 43		02 05½	02 20½	15m	7m E	"				5.6	G0 III							
11.27	β TrA	15 52.5	-63 20	"	04 31	04 34	52s	41m W	"	"	"	"	3.2	F2 V	"	"	"	"	"		
	ρ Lup	14 35.9	-44° 18		04 37	04 46	63s	48m E	"				3.9	B5 V							
	δ TrA	16 12.7	-63 37		04 55	05 01	5m	35m W	"				4.9	G2 II							
	γ² Nor	16 17.6	-50 05		05 11	05 18	7m	22m W	"				5.1	G8 III							
	χ Aps	16 28.8	-78 50		05 28	05 36	8m	2m W	2"				4.8	KC IV							
	δ Aps	"	"		05 37	05 43	6m	8m W	1.5"				"	"							
	β Aps	16 38 8	-77 27		05 51	05 59	8m	2m W	1.5-2"				5.3	KO III							
	α TrA	16 45.5	-68 59		06 16	06 15	100s	7m W	2"				3.36	K2 III							
	η Aps	16 47.2	-58 59		06 22	06 28	16m 8s						5.3	K5 III							

Object: Invertor off!
Cigar! Wide slit
again! Spray-on
settings!
(But cant write down!)

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 109

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1127	η Ara	16 47.2	-58 59	MAY	06 40	06 47	8m	38m E	1.5" clear	2.90	Slit 1.20	67/4.45	5.3	K5 III	NeA	60s	NONE	IIaO	M-S	n61+Fgi	
(cont)	ζ Ara*	16 56.1	-55 57	10/11	06 49	07 02	8m 4m	43m E	"				4.8	K5 III					67°F		
	ε Ara	18 04.3	-50 06	1976	07 06	07 08	90s	25m W	"				3.6	B2 Ib					15 mm		
1128	ε' Ara*	16 57.2	-53 07		07 14	07 38	15m 8m	1h 19m E	"				5.5	K3 III							
	ζ Aps	17 18.8	-67 45		07 40	07 55	15"	1h 13m E	"				6.0	gK1							
	β Ara*	17 22.8	-55 30		07 58	08 13	8m 1m	1m 27m E	2-3"				4.4	K3 Ib							
	γ Ara	17 22.9	-56 21		08 15	08 19	1m	1h 34m E	2"				3.2	B1 V							
	δ Ara	17 28.4	-60 40		08 21	08 23	90s	1h 32m E	2"				3.5	B8 V							
	η Pav	17 42.8	-64 43		08 26	08 31	5m	1m 29m E	2"				4.8	K1 III							
	κ Pav	18 53.9	-67 16		08 36	08 41	4m	~5m E	"				~4.5	F5							
	ε Pav	19 57.2	-73 00		08 44	08 48	2m	31m W	"				3.9	A0 V							
	γ Cr A (N)	19 04.4	-37 06		08 52	08 57	8m	54m W	"				5.6	F8 V							
	" A(S)	"	"		08 59	09 11	12m	4h 40m W	"				"	"							
	μ Cph	17 [illegible].2	-8 06		09 13	09 17	3½m	2h 18m W	"				4.7	G8							
1129	ν Cph	17 57.4	-9 46	"	09 25	09 28	3m	2h 07m W	"	"	"	"	4.3	G9 III	"	"	"	"	"	"	K0 IIIa CN-1
	ζ Ser	17 58.9	-3 41		09 32	09 36	5m	2h 16m W	"				5.0	F3 V							
	ω Cap	20 50.0	-27 02		09 40	09 58	18m	15m E	"				5.7	K5 III							
	24 A Cap	21 05.4	-25 08		10 00	10 24	25 m	3m E	1.5"				6.1	M1 II							
	δ Aqr	21 52.1	-37 30		10 25	10 30	30s	44m E	"				2.9	B8 III							
1130	"MCON"	23 32.9	-16 20	MAY	23 51	01 51	2hr	1m 0m E	clm	3.40	100μ/1.6	112/7.0	—	—	NeA	20s	NONE	IIaO	M-S	Fgi	background temp 37
	SAC #[illegible]*	17 01.3	-37 40	11/12	02 11	02 28	8m 8m	3h 51m E	2" clm				7.4	A0					67°F	"	H = 37%
	SAC #99	17 04.5	-38 34	1976	02 41	02 53	12m	3h 29m E	2" "				7.9	F2					15 mm		T = 15°C
1131	#84	17 01.7	-38 06	"	04 48	05 13	25m	1h 05m E	" "	"	"	"	8.4	A0 Sr	"	"	"	"	"	"	" " " -2
	#85	"	"		05 34	06 34	1h 0m	5m E	" "				9.4	A							
	#94	"	"		06 25	07 00	35m	4.m W	" "				9.2	A							wrong *?
	#92	"	"		07 06	07 46	40m	1h 26m W	" "				9.4	A							
	#[illegible]	"	"		07 53	08 24	30m	2h 07m W	" "				9.1	A							
	#14	"	"		08 37	09 34	55s	3h 15m W	" "				9.7	A							
1132	HD 45725	6 27.5	-7 01	MAY	23 27	23 27	245	3h 44m E	1.5" clm	3.40	100μ/1.6	112/7.0	4.5	B5 Ie	NeA	20s	NONE	IIaO	M-S	Fgi	H = 37%
	AX Mon	6 29.1	+5 53	12/13 1976	23 45	23 50	5m	4h 05m E	" "				7.1	B2e					67°F 15 min		T = 14°C

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 110

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1132	+30 5C138	6 50.2	-6 44	12/13	00 05	00 08	3m	4h 02m E	1.5 clear	3.40	100μ .6	112 7.0	6.6	B9	NeA	.2s	None	IIaO	M-S	Fgt	wind 2-6
cont.	HD 54858	7 08.7	-9 18	MAY	00 25	00 41	15m	3h 17m E	" "				8.4	A0e					67°F		
	HD 58978	7 25.8	-23 02	1976	00 48	00 50	1m	3h 09m E	" "				5.5	B1e					15 min		
	48 Lb	15 56.5	-14 11		01 10	01 12	24s	4h 05m W	" "				4.5	B9e							
	# 85	17 01.7	-38 06		03 14	04 01	45m	3h 18m W	" "				9.4	A							
	" 11	"	"		04 14	04 43	27m	2h 36m W	" "				9.0	A							
	# 14	"	"		05 06	06 28	1h 22m	52m E	" "				9.7	A							wrong * (#10)
1133	# 10	"	"	"	07 24	07 41	15m	22m W	" "	"	"	"	8.4	A	"	"	"	"	"	"	
	# 14	"	"		07 [illegible]	08 52	2m	1h 35m W	" "				9.7	A							
	# 67	"	"		3[illegible]	3	3m	0m 12m W	" "				9.7	Ap							
	# 16	"	"		07 37	50	2m	3h 32m W					9.7	A							
1134	η CMa	07 23.1	-29 16	MAY 13/14 1976	00 52	01 01	9m		2" clear	"	"	"	2.33	B5 Ia	"	"	"	"	"	Fgt/Give	5m screen
	λ Lep	10 06.9	+12 04		01 12	01 14	2m6s	0h 52m W					1.25	B7 Ve							"
	β Sex	10 28.9	-00 30		01 26	01 28	36s	0h 44m W					4.40	B6 IV							
	κ Hya	09 39.2	-14 14		01 31	01 33	36s	1h 41m W					4.40	B5 IV							
	HR 3314	08 24.4	-03 50		01 40	01 41	20s	2h 59m W					3.88	A0 V							
	ζ Ser	15 39.9	+19 44		01 48	01 49	40s	4h 05m E					4.56	A1 V							
1135	NGC 6281 #84	17 01.9	-37 43		02 [illegible]	03 37	30m	3h 37m E					8.9	Ap							
	96	17 02.5	-37 51		03 41	04 18	31m	3h 00m E					9.1	A							
	94	17 02.3	-37 56		04 29	05 04	34m	2h 13m E					9.2								wrong *? T=15° H=51%
	# 18	17 02.7	-37 55		05 12	05 58	46m	1h 19m E					9.5								
	# 19	17 03.0	-37 53		06 03	07 09	66m	0h 07m E					9.9								
	# 91	17 02.2	-37 57		07 23	08 46	1h 23m	1h 32m E					[illegible]								UT CLOCK OFF
	# 12	17 02.6	-37 53		08 50	09 11	21m	1h 56m E					8.7								
	# 82	17 01.4	-38 02		09 23	12 17	174m	4h E					10.4								
1136	# 84	17 01.9	-37 43	17/18	07 16	07 41	25m	1h 40m W	1½ clear	3.40	100μ .6	112 7.0	8.9	Ap	Neon	20s	None	II-aO	M-S	Fgt+Give	
	# 19	17 03.0	-37 53	MAY	07 52	08 09	2m	3h W	"				9.9						67°F		
	# 82	17 02.9	-38 02	1976	08 06	08 37	31m	4h 51m W	"				10.4						15 min		
1137	# 84	17 01.6	-37 [illegible]	MAY	01 15	01 [illegible]	2m	1h 38m E	clear	3.40	100μ .6	112 7.0	8.9	Ap	Neon	20s	None	II-aO	M-S 67°F	Fgt+Give	
	# 82	17 02.5	-37 59	MAY 1976	01 43	03 [illegible]	117m	3h 10m E	"				10.4						15 min		

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1137	#67	17 02.0	-37 55	MAY	03 48	07 04	3h 22m	1h 06m W	1.5" clear	3.40	[illegible]	112 / 7.0	[illegible]	A	NeA	20s	None	II-aO	M-S	Fair [illegible]	
Cont	#70	17 02.9	-37 57	18,19	07 08	09 00	1h 52m	3h 02m W	" / "				10.4	A					[illegible] F		
				1976															15 mm		
1138	#89	17 02.9	-37 55	MAY 19/20 1976	07 28	09 17	107m	3h 28W	1.5" clear	"	"	"	10.4	A	"	"	"	"	"	Fair [illegible]	
	84	17 02.5	-37 45		09 21	09 45	24m	3h 52W	" / "				8.9	Ap							
1138	#10	17 03.3	-38 04	MAY 20/21 1976	23 14	23 45	31m	6h 07E	4" clear	3.40	100μ / .6	112 / 7.0	8.4	Ap	NeA	20s	None	II-aO	M-S [illegible] F 15 mm	Fair [illegible]	
Cont	#11	"	-38 03		23 52	00 38	46m	5 14 E	" cloudy				9.0	A							
	#14	17 03.4	-38 04		00 39	02 43	2h 04m	3 09 E	3" clear(?)				9.7	A							clouds during exposure
	#94	17 03.2	-37 59		02 48	03 26	38m	2h 25 E	" clear				9.2	A							
	#92	17 03.1	-37 56		03 28	04 08	40m	1h 43 E	" / "				9.4	A							
	#84	17 03.0	-37 44		04 11	04 36	25m	1h 15 E	" / "				8.9	Ap							
	#17	17 03.5	-37 55		04 41	—	/	—	/				10.6	A							clouds

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1139 IT	NGC 6250 #16	16 55.1	-45 45	June 26/27 1967	03 17	05 45		2h 30 W	4"/cirrus	340	70μ/0.6	112/7.0	11.6	A2	NeA	2s	–	IIa-D	MS 15min	Gue	
1140	HD 188114				08 11	08 14	85s/	02h 04W		290		67/	4.2					II[illegible]			
	HD 197051				08 22	08 24	50s/100s	1h 23W					3.6								
	HD 190248				08 28	08 31	50s/100s	2h 08W					3.6								
	HD 202671				08 40	08 46	4m/ ✓	1h 14W					5.4								
1141	ε Indi				09 50	10 00	10m/	~~[illegible]~~											D-19	KK	
	α Phe				10:21	10:31	3½, 2, ½m/														
1142 IT	SLS 1916	14 46.6	-57 53	June 27/28	23.22	00 23	-60		3"/cirrus	340	50μ/0.6	112/7.0	10.33		NeA	4s		IIa-D	M-S	Gue	VFC failure!
1143	146836	16 18.0	-30 51	1976	01 08	01 14		1h 20E		290	50μ/0.6	67/	5.4	F5	NeA	60s x2		IIa-C	MWP-2	KK	repaired
	ε Nor				01 23	01 27		[illegible]					4.8	B5	"	"					
	150136				01 40	01 46							5.6	C05	"	"					
	170465	18 30.0	-45 55	"	03 00	03 05	3½/	1h 41E					5.0	B8	"	"					
	170523	18 24.7	-45 49		03 10	03 15	5m/						5.33	B5IV	"	30 x2					
	170270	18 59.6	-37 08		03 21	03 36	15m/	1h 39E					6.6	B9	"	"					
	170269	18 59.5	-37 08		03 40	04 00	20m/	1h 13E					6.8	B9n	"	"					
1144	178028	19 09.4	-39 05		05 00	05 07	7m/	15W					6.2	B8n							
	179950	19 14.1	-25 23		05 12	05 15	2m/	15W					4.9	dF5	"	45x2					
	199532 x0.1	21 03.1	-77 05		05 28	05 31	3m/	1h 47E					5.2	F4	"	"					
	179950	19 14.0	-25° 18		05 40	05 44	3½m/	0h 14W					5.48	dF5	"	"					
	"	"	"		05 46	05 50	4m/	0h 20W					"	"							
	HD ~~188114~~ 197051	20 42.7	-66 16		05 58	06 00	90s/	1h 00E					3.6	A5IV							
1145	+1° 4050	19 36.6	+01 29		07 10	07 16	3m/weak	1h 56W					7.4	OB	NeA	60s			M-S	[illegible]	
	+1° 3986	19 24.9	+01 56		07 23	07 41	18m/ ✓	2h 02W	1-1½/[illegible]	342	50μ/0.6	112/7.0	8.1	OB							[illegible]
	+3° 3902	19 07.1	03 26		07 44	08 06	22m/ ✓	2h 43W					8.2	B3Ia							
	+3° 4065	19 33.6	03 46		08 08	08 14	6m/ 7	2h 25W					6.9	B0.5IV							
	+3° 3727	18 30.1	04 04		08 16	08 21	5m 7	3h 36W					6.6	OB							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1146	Anon H II	14 31.5	-60 43	June 30/	01 00	02 00	60m	1h26mW	2" clear	345	300μ	112/1.	~13		Ne 4	1s		IIaD	1MuP2	KK	untrailed 5 star N-S
1147	+1°3578	18 04.6	01 55	July 1 1976	03 58	04 00	2m/3	0h03mE	1½"/sc clear	342	504/0.6	112/7.0	5.9	OB	NeA	50s		IIaO	M-S	Gve	
	+6°3597	18 00.8	06 16		04 21	04 25	3½m/X	0h19mW					6.4	OB-					15 min		double exp? No spectra
	+9°3727	18 30.1	04 04		04 32	04 37	5m/6						6.6	OB-							
	-0°3513	18 35.0	+00 02		04 58	05 20	22m/24	0h37mW					8.5	OB-							
	-1°3544	18 43.3	-01 39		05 24	05 44	20m/✓	0h52mW					8.4	OB-							
	-1°3553	18 44.2	-01 33		05 47	06 08	21m/✓	1h17mW					8.4	OB							
	+0°4159	19 17.2	+01 00		06 12	06 38	26m/✓	1h14mW					8.5	OB							
1148	+0 3996	19 24.9	+01 50		07 23	07 48	25m/27	2h18mW					8.1	OB							
	+0 4053	18 55.8	+00 16		07 51	08 06	15m/✓	3h05mW					7.3	B3V							
	+4 4195	19 42.6	04 57		08 21	08 52	31m/29	3h04mW	2"/cirrus				8.0	OB							
1149 (IT)	SLS 1916	10 46.6	-57 48	July 3/4	23 51	00 50	60m						10.33					IIaD	M-S	Gve/Max	
	NGC 6250 #16	6 56.0	-45 50	1976	01 10	02 38	80m	0h26mW					11.6	A2	NeA	2s			15 min		
1150	RS 1	16 46.1	-62 27		03 00	06 00	180m	3h22mW					13.3		2NeA	4s					
1151	τ Sco	16 34	-28 0	July			2½m/6		1½ clear	342	500μ/1.2	112/10	2.0	B0V				IIaD		Gve/Max	5m screen -5
	β¹ Sco	16 03.8	-19 44	6/7 1976	01 12	01 25	2m2/4	0h13E					2.55	B0.5V							
	ω¹ Sco	16 05.1	-20 [illegible]		01 36	01 43	7m/..	0h05E					3.91	B1V							
	22 Sco	16 28.6	-25 02		01 52	—	10s/25s	0h19E					4.65	B2V	NeA	5s		II			
1152	π Sco	16 34.0	-28 10		03 55	03 09	8m/✓	~40mW					3.06	B0V				IIaD			
	β¹ Sco	16 03.8	-19 [illegible]		03 18	03 22	5½m/5½	1h35mW					2.55	B0.5V							
	ω¹ Sco	16 05.1	-20 34		03 26	03 34	12m/✓	1h51mW					3.91	B1V							
	22 Sco	16 28.6	-25 02		03 43	—	20s/✓	1h33W					4.65	B2V							
	σ Sgr	18 00.8	-24 2[illegible]		03 50	03 52	48s/✓	0h08W					[illegible]	O5V	NeA	5s					
1153	μ Sgr	18 12.3	-21 03		04 14	04 21	7m/14	0h30mW					4.00	B3IVp							
	15 Sgr	18 13.8	-20 43		04 32	04 32	145	0h37mW					5.45	B0Ia							
	16 Sgr	18 13.8	-20 23		04 38	04 38	18s	0h43mW					6.02	O9III							
	η Sgr	18 16.0	-36 46		04 48	04 51	3m/1m	0h40mW					4.08	M3II							
	σ Sgr	18 19.4	-29 50		04 57	04 57	12s/18s	0h50mW					4.03	K2III							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1154	13 Sco	161049	-275156	July 8/9	0336	0336	48s	2h W	2"		50μ 0.6	112/70	4.7	B3	NeA	60s	NONI	IIaO	M-S 67°F 15 min	Max	
					0340	0340	24s	2h W	"												
					0343	0344	1m36s	2h W	"												
	θ Oph	172032	-245837		0405	0405	15s	1h10m W	"				3.4	B3							
					0405	0405	7s	1h10m W	"												
					0406	0406	30s	1h10m W	"												
	44 Oph	172454	-240917		0422	0422	35s	1h20m W	"				4.3	F0							
					0423	0423	18s	1h20m W	"												
					0423	0424	1m10s	1h20m W	"												
	W Sgr	180329	-293457		0426	0427	42s	30m W	"				4-5	F8p							
					0428	0428	21s	30m W	"												
					0429	0430	1m24s	30m W	"												
1155	α Sgr	192213	-403945		0523	0523	25s	30m W	"				4.1	B8							
					0524	0524	13s	30m W	"												
					0525	0525	50s	30m W	"												
	ι Sgr	195336	-415558		0535	0535	30s	32m W	"				4.2	K0							
					0536	0536	15s	32m W	"												
					0538	0539	1m	32m W	"												
	α Pav	202345	-564848		0555	0555	8s	4m E	"				2.1	B3							
					0556	0556	4s	4m E	"												
					0557	0557	16s	4m E	"												
	α Ind	203553	-472235		0609	0609	12s	1m E	"				3.2	K0							
					0610	0610	6s	1m E	"												
					0611	0611	24s	1m E	"												
~~[illegible]~~	γ Hya	131736	-230244	July 9/10	2339	2340	36s	1h W	2"				3.3	G5							
1156					2340	2340	18s	1h W	"												
					2341	2341	9s	1h W	"												
	ι Cen	131714	-363510		2357	2358	24s	1h10m W	"				2.9	A2							
					2358	2359	12s	1h10m W	"												
					2359	2359	6s	1h10m W	"												

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
	2 Cen	13 48 02	-34 19 54		0030	0032	2^m	$2^h 10^m W$	2"		50μ / 0.6		4.7	M6	Ne A	60^s	NONI	IIaO	M-S 67% 15 min	Mark	
					0033	0034	1^m	$2^h 10^m W$	"												
					0035	0035	30^s	$2^h 10^m W$	"												
1157	D Lib	15 35 33	-28 03 24		0207	0209	$1^m 24^s$	1^h W	"				3.8	K2							
					0210	0211	42^s	1^h W	"												
					0211	0212	21^s	1^h W	"												
	δ Sco	15 58 54	-22 33 17		0227	0228	20^s	1^h W	2-3				2.5	B0							
					0228	0229	10^s	1^h W	"												
					0230	0230	5^s	1^h W	"												
	σ Sco	16 19 43	-25 32 12		0243	0244	30^s	$1^h 4^m W$	"				3.1	B1							
					0245	0245	15^s	$1^h 4^m W$	"												
					0246	0246	8^s	$1^h 4^m W$	"												
	λ Sco	16 27 55	-26 22 49		0254	0254	12^s	1^h W					1.2	M0, H3							
					0256	0256	6^s	1^h W													
					0257	0257	3^s	1^h W													
1158	ζ Sco	16 52 53	-42 19 19		0338	0339	$1^m 12$	$1^h 15^m W$					3.7	K5							
					0340	0341	36^s	$1^h 15^m W$													
					0341	0341	18^s	$1^h 15^m W$													
	υ Sco	17 29 07	-37 16 42		0352	0353	22^s	$56^m W$					2.8	B3							
					0354	0355	11^s	$56^m W$													
					0356	0356	6^s	$56^m W$	2-3"												
	λ Sco	17 31 58	-37 05 16		0400	0401	12^s	$1^h 5^m W$	"				1.7	B2							
					0404	0405	6^s	$1^h 5^m W$	"												
					0408	0408	3^s	$1^h 5^m W$	"												
1159	K Sco	17 40 49	-39 01 01		0434	0434	18^s	$1^h 20^m W$	"				2.5	B2							
					0436	0436	9^s	$1^h 20^m W$	"												
					0437	0437	5^s	$1^h 20^m W$	"												
	G Sco	17 48 13	-37 02 14		0448	0449	40^s	1^h W	"				3.2	K2							
					0455	0455	20^s	1^h W	"												
					0457	0457	10^s	1^h W	"												

NUMBER	OBJECT	P.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	γ Sgr	1804 15	-30 25 33		0510	0511	40s	1h 47m W			50μ 0.6		3.1	K0	Ne A	60s	NONI	II a O	M-5 87° 15 min	Max	
					0515	0515	20s	"													
					0518	0518	10s														
	ε Sgr	18 22 34	-34 23 51		0541	0541	14s	1h W					1.9	A0							
					0543	0543	7s	"													
					0544	0544	4s														
1160	λ Sgr	18 26 29	-25 26 11		0551	0552	36s	2h W					2.9	K0							
					0553	0553	18s	2h W													
					0554	0554	9s	2h W													
	σ Sgr	18 53 46	-26 19 41		0600	0601	20s	1h 33m W					2.1	B3							
					0603	0603	10s														
					0604	0604	5s														
	τ Sgr	19 01 05	-29 54 58		0610	0611	30s	1h 40m W					2.7	A2							
					0614	0615	15s	"													
					0616	0616	8s	"													
1161	γ Hya	13 17 30	-23 02 36	July 10/11	0004	0005	48s	1h 20m W	2"				3.3	G5							
					0009	0009	24s		"												
					0011	0011	12s		"												
	2 Cen	13 48 02	-34 19 57		0031	0035	2m 20s	1h 11m W	"				4.4	M6							
					0041	0043	1m 10s	1h 25m W	"												
					0046	0048	35s	1h 35m W	"												
	τ Lib	15 02 39	-25 11 19		0100	0103	1m 20s	37m W	"				3.4	M3							
					0107	0109	40s	43m W	"												
					0111	0113	20s	41m W	"												
1162	2 Lup	15 16 21	-30 03 42		0144	0148	3m	1h 12m W					4.4	K0							
					0150	0152	1m 30s	1h 8m W													
					0158	0200	45s	1h 20m W													
∉	ε Lup	15 21 02	-44 36 10		0203	0203	1m	1h 22m W					3.7	B3							
					0211	0213	30s	1h 30m W													
					0215	0216	15s	1h 30m W													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	13 Sco	161049	-275156		0224	0227	2m	50m W			50μ / 0.6	112/70	4.7	B3	Ne A	60s	NONE	IIaO	M-S OFF 15 min	Max	
					0232	0234	1m	1h W													
					0237	0239	30s	1h2m W													
1163	N Sco	162948	-343913		0259	0302	2m	1h5m W					4.3	B3							
					0307	0309	1m	1h13m W													
					0311	0314	30s	1h18m W													
	θ Oph	172032	-245837		0323	0325	40s	33m W					3.4	B3							
					0331	0333	20s	40m W													
					0334	0334	10s	40m W													
	44 Oph	172454	-240917		0347	0350	2m	1h W					4.3	F0							
					0356	0358	1m	1h7m W													
					0401	0403	30s	1h12m W													
1164	Q Sco	173453	-383712		0427	0430	2m	1h20m W	2-3"				4.3	K0							
					0437	0439	1m	1h30m W	"												
					0442	0445	30s	1h38m W	"												
	W Sgr	180329	-293457		0453	0457	5m	1h30m W	"				4-5	F8p							
					0501	0506	4m30s	1h31m W	"												
					0508	0510	2m30s	1h47m W	"												
					0515	0517	1m30s	1h53m W	"												
	τ Sgr	190526	-274225		0529	0531	1m	1h W	"				3 4	K0							
					0533	0535	30s	1h4m W	"												
					0537	0538	15s	1h7m W	"												
1165	L Sgr	195336	-415558		0610	0616	5m	50m W					4.2	K0							
					0617	0619	2m30s	1h W													
					0620	0622	1m30s	1h3m W													
	α Ind	203553	-472235		0630	0635	1m	2h W					3 2	K0							
					0639	0641	30s	39m W													
					0642	0645	25s	43m W													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	∠ Gru	22 06 43	-47 04 41		0654	0656	22"	1h 18 E			50μ / 0.6	112/70	2.2	B5	Ne A	60s	NONI	II a O	M-S E7°F 15 min	Max	
					0657	0657	11"	"													
					0659	0659	6"	"													
1166	d Cen	13 29 38	-39 17 02	July 11/12	2327	2330	2m	1h 37m W	2"-3"				4.0	K0							
					2332	2334	1m	1h 40m W	"												
					2337	2339	30s	1h 45m W	"												
	ε Cen	13 38 21	-53 20 42		2342	2344	28s	1h W	"				2.6	B1							
					2346	2347	14s	"													
					2348	2349	7s	"													
	λ Cen	13 44 19	-32 55 23		2353	2359	5m	53m W					4.4	F5							Cloudy
					0000	0005	2m 30s	1h W													"
					0007	0009	43m 30s	1h 2m W													"
1167	ν Cen	13 48 03	-41 34 07	July 12/13	2341	2344	1m	1h 37m W	2"-3"				3.5	B2							
					2348	2350	30s	1h 44m W	"												
					2351	2352	15s	"	"												
	μ Cen	13 48 09	-42 21 17		0001	0003	1m	1h W	"				3.3	B2p							Cloudy etc
					0005	0009	30s	"	"												"
					0010	0012	15s	"	"												"
1168	ζ Cen	13 54 02	-47 10 15	July 13/14	2325	2327	40s	18m W	2"-3"				3.1	B2p							
					2328	2330	20s	24m W													
					2332	2333	10s	"													
	φ Cen	13 56 48	-41 59 03		2347	2349	1m 12s	37m W					4.0	B3							
					2354	2356	36s	43m W													
					2358	2359	18s	46m W													
	χ Cen	14 04 34	-41 03 55		0007	0010	2m	51m W					4.5	B3							
					0015	0019	1m	1h W	3"-4"												
					0021	0023	30s	1h W													
	θ Cen	14 05 15	-36 15 09		0025	0028	24s	1h 14m W					2.3	K0							
					0030	0031	12s	"													
					0033	0034	6s	"													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1169	π Lup	15 03 28	-46 57 30		0111	0114	1m12	55m W	4"		50μ / 0.6	112 / 70	4.0	B5	N_2 A	60s	NONE	II a O	M-5 67°F 15 min	Mak	
					0121	0124	36s	1h6m W	"												
					0126	0128	18s	1h9m W	"												
	λ Lup	15 07 13	-45 11 19		0140	0144	1m40	1h22m W	"				4.4	B3							
					0148	0152	50s	1h30m W	"												
					0154	0156	25s	1h35m W	"												
	η Nor.	16 01 26	-49 09 51		0207	0212	4m	56m W	4"-5"				4.7	G5							Cirrus
					0214	0216	2m	59m W	"												"
					0217	0219	1m30s	1h2m W	"												"
	θ Lup	16 05 00	-36 44 18		0231	0236	1m40s	1h17m W					4.3	B3							
					0240	0242	50s	1h22m W													
					0244	0246	25s	1h27m W													
1170	ξ Oph	17 19 33	-21 05 19		0309	0314	4m+1m	30m W					4.5	F5							
					0318	0322	2m+1m	58m W													
					0325	0328	2m30s	59m W													
	45 Oph	17 25 49	-29 50 49		0334	0339	4m	1h W					4.4	F5							
					0340	0343	2m	1h3m W													
					0348	0350	1m	1h10m W													
	α Ara	17 29 59	-49 51 32		0354	0356	30s	1h12m W	3"				3.0	B3p							
					0358	0400	15s	1h15m W	"												
					0405	0406	8s	1h21m W	"												
	δ Sgr	18 19 27	-29 50 23		0410	0412	30s	37m W					2.8	K0							
					0415	0416	15s	41m W													
					0417	0418	8s	44m W													
1171	59 Sgr	19 55 28	-27 14 05		0440	0444	4m	26m E					4.6	K2							
					0447	0449	2m	21m E													
					0452	0453	1m	18m E													
	62 Sgr	20 01 11	-27 46 40		0459	0503	4m	13m E					4.6	M3							
					0505	0508	2m	8m E													
					0511	0512	1m	4m E													

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	η Ind	20 42 17	-52 00 29		0526	0530	4m	27m E	2"-3"		50μ / 0.6	112 / 70	4.7	F0	NeA	60s	NONE	IIaO	M-S 67F 15 min	Mak	
					0531	0534	2m	23m E	"												
					0537	0538	1m	19m E	"												
	β Ind	20 52 56	-58 32 46		0545	0548	2m	16m E	"				3.7	K0							
					0550	0552	1m	10m E	"												
					0558	0559	30s	8m E	"												
1172	λ Gru	22 04 40	-39 39 35		0619	0624	4m	56m E	"				4.6	K2							
					0625	0627	2m	51m E	"												
					0630	0631	1m	48m E	"												
	μ Ps A	22 06 59	-33 06 23		0636	0639	2m	43m E	"				4.6	A2							
					0645	0647	1m	34m E	"												
					0650	0651	30s	30m E	"												
	β Ps A	22 30 08	-32 28 10		0701	0703	1m	42m E	"				4.4	A0							
					0705	0706	30s	38m E	"												
					0708	0709	15s	36m E	"												
	β Gru	22 41 14	-47 00 38		0713	0714	20s	34m E	"				2.2	M3							
					0715	0716	10s	"	"												
					0718	0719	5s	"													
1173	M Cen	13 45 07	-51 18 47	July 14/15	2322	2329	6m	22m W	1"		50μ / 1.2		4.7	K0	NeA	60s	NONE	IIaO	M-S 67F 15 min	Mak	
					2331	2335	3m	38m W	"												
					2338	2340	1m 30s	44m W	"												
	λ Cen	14 37 57	-60 44 14		2347	2348	10s	1m W	"				0.L	G0							
					2349	2350	5s	"	"												
					2351	2351	2s	"													
	λ Lup	14 40 19	-47 17 10		2356	2357	24s	9m W					2.4	B2							
					2358	2359	12s														
					0000	0001	6s														
1174	γ Lup	15 33 32	-41 05 17		0053	0054	35s	13m W					2.9	B3							
					0056	0057	18s														
					0059	0059	9s														

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	ω Lup	15 36 25	-42 29 23		0105	0112	5^m	24^m W	1"		50μ / 1.2		4.3	K5	NeA	60^s		IIaO	M-5 OFF 15 min	Mar	
					0114	0117	$2^m 30^s$	29^m W	"												
					0119	0121	$1^m 30^s$	33^m W	"												
	r Lib	15 37 10	-29 42 01		0126	0128	1^m	44^m W					3.8	B3							
					0129	0130	30^s	"													
					0131	0132	15^s	"													
	π Sco	15 57 23	-26 02 47		0142	0144	1^m	40^m W					3.0	B2							
					0145	0146	30^s	"													
					0148	0148	15^s	"													
1175	r Sco	16 34 23	-28 10 03		0208	0210	1^m	30^m W	1"				2.9	B0							
					0211	0212	30^s	"													
					0215	0215	15^s	"													
	ε Sco	16 48 36	-34 15 04		0218	0220	30^s	23^m W	2"				2.4	K0							
					0221	0222	15^s	"	"												
					0223	0223	8^s	"	"												
	μ^2 Sco	16 50 42	-37 50 41		0233	0234	40^s	36^m W	"				3.6	B2p							
					0235	0236	20^s		"												
					0238	0238	10^s		"												
	μ^1 Sco	16 50 44	-38 08 28		0241	0243	1^m	45^m W	"				3.1	B2p							
					0244	0245	30^s		"												
					0246	0246	15^s		"												
1176	η Sco	17 10 25	-43 12 33		0305	0307	$1^m 20$	40^m W					3.4	F2							
					0308	0310	40^s	50^m W													
					0311	0312	20^s	"													
	β Ara	17 23 18	-55 30 33		0318	0320	40^s	50^m W					2.8	K2							
					0321	0322	20^s	"													
					0323	0323	10^s	"													
	γ Ara	17 23 22	-56 21 25		0328	0330	48^s	57^m W					3.5	B1							
					0331	0332	24^s	"													
					0333	0333	12^s	"													

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
	θ Sco	173535	-425403		0339	0340	10^s	56^m W	2"		50μ / 1.2		2.0	F0	Ne A	60^s		IIaO	M-S 67°F 15 min	Mak	
					0341	0341	5^s	"	"												
					0342	0342	2^s	"	"												
1177	η Sgr	181600	-364614		0400	0401	1^m	34^m W	"				3.2	M3							
					0403	0404	30^s	38^m W	"												
					0405	0405	15^s	"	"												
	ζ Tel	182511	-455859		0415	0417	$1^m 10^s$	40^m W	"				3.8	B3							
					0418	0419	35^s	55^m W	"												
					0420	0422	18^s	"	"												
	φ Sgr	184409	-270101		0430	0431	40^s	39^m W	"				3.3	B8							
					0432	0432	20^s	"	"												
					0433	0433	10^s	"	"												
	π Sgr	190820	-210347		0441	0442	40^s	26^m W	"				3.0	F2							
					0443	0443	20^s	"													
					0444	0444	10^s	"	"												
1178	β Pav	204248	-661727		0503	0505	1^m	50^m E					3.6	A5							
					0508	0508	30^s	44^m E													
					0509	0509	15^s	"	"												
	γ Pav	212428	-652834		0520	0523	2^m	$1^h 13^m$ E	"				4.3	F8							
					0527	0529	1^m	$1^h 8^m$ E													
					0531	0532	30^s	$1^h 4^m$ E	"												
	γ Gru	215228	-372842		0542	0542	40^s	$1^h 18^m$ E	2"				3.2	B8							
					0543	0543	20^s	"	"												
					0544	0544	10^s	"	"												
	α Gru	220643	-470441		0549	0549	12^s	$1^h 26^m$ E	"				2.2	B5							
					0550	0550	6^s	"	"												
					0551	0551	3^s	"	"												
1179	β Gru	224114	-470038		0608	0608	24^s	$1^h 42^m$ E	"				2.2	M3							
					0609	0609	12^s	"	"												
					0610	0610	6^s	"	"												

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	ε Gru	224706	-512636		0619	0619	1^m	1^h37^mE			50μ / 1.2		3.7	A2	NeA	60^s		IIaO	M-5 67F 15 min	Max	
					0620	0620	30^s	"													
					0621	0621	15^s	"													
	α PsA	225619	-294500		0626	0626	12^s	1^h40^mE					1.3	A3							
					0627	0627	6^s														
					0627	0627	3^s														
	88 Aqr	230810	-211811		0631	0634	1^m24^s						3.8	K0							
					0635	0636	42^s														
					0637	0638	21^s	1^h41^mE													
1180	β Cen	140207	-601529	July	2328	2328	16^s	19^mW	1"				0.9	B1							
				15/16	2329	2329	8^s	"	"												
					2329	2329	4^s	"	"												
	π Hya	140500	-263403		2340	2342	1^m	33^mW	"				3.5	K0							
					2343	2344	30^s		"												
					2345	2346	25^s														
	η Cen	143358	-420312		2355	2356	24^s	17^mW	"				2.6	B3p A2p							
					2357	2357	12^s	"													
					2358	2358	6^s	"	"												
	β Lup	145657	-430218		0006	0006	24^s	3^mW	"				2.8	B2p							
					0007	0007	12^s		"												
					0008	0008	6^s		"												
1181	κ¹ Lup	151015	-483852		0025	0028	3^m	10^mW	1"-2"				4.1	B9							
					0030	0032	1^m30^s	14^mW	"												
					0039	0040	59^s	22^mW	"												
	ζ Lup	151033	-520033		0051	0054	2^m	37^mW	"				3.5	K0							
					0100	0102	1^m	44^mW													
					0105	0106	30^s	48^mW													
	η Lup	155831	-381946		0119	0120	1^m	13^mW					3.6	B3							
					0124	0125	30^s	18^mW													
					0128	0129	15^s	22^mW													

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 124
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U T EXP. BEGIN	U T EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB.	EMUL	DEV.	OBS	REMARKS
	ω Oph	16 30 42	-21 24 59		0135	0141	5^m	4^m W	1"–2"		50μ / 1.2		4.6	F0	Ne A	60^s		II a C	M-S 67°F 15 min	Max	
					0142	0145	$2^m 30^s$	8^m W	"												
					0147	0149	$1^m 25^s$	12^m W	"												
1182	H Sco	16 34 47	-35 12 27		0207	0210	3^m	28^m W	"				4.3	M2							
					0212	0214	$1^m 30^s$	33^m W	"												
					0219	0220	45^s	38^m W	"												
	α TrA	16 46 06	-68 59 09		0227	0228	20^s	39^m W					1.9	K2							
					0229	0230	10^s														
					0231	0231	5^s		"												
	η Ara	16 47 42	-59 00 02		0236	0239	2^m	45^m W	"				3.7	K5							
					0244	0247	1^m	52^m W													
					0249	0252	30^s	59^m W													
	× δ Ara	17 28 55	-60 39 56		0301	0303	1^m	30^m W					3.8	B8							
					0306	0307	30^s	31^m W													
					0309	0310	15^s	33^m W													
1183	ξ^2 Sgr	18 56 17	-21 08 23		0334	0336	1^m	28^m E	1"–2"				3.6	K0							
					0339	0341	30^s	23^m E													
					0343	0344	15^s	20^m E													
	c Sgr	19 03 14	-21 46 41		0348	0350	2^m	20^m E					3.9	K0							
					0355	0357	1^m	13^m E													
					0359	0401	30^s	9^m E													
	α CrA	19 07 50	-37 56 36		0413	0415	$1^m 20$	0^h					4.1	A2							
					0418	0420	40^s	15^m W													
					0422	0424	20^s	18^m W													
1184	50 Her	16 49.0	+29 54	Aug 3/4	0151	0151	18^s	$1^h 11^m$ W	2"				5.7	M0 III a							HR [illegible]
					0200	0200	36^s		2"		100μ / 0.4				Ne A	4^s		II a O	M-S 67°F 15 min	Max	
					0211	0211	25^s	$1^h 29$ W	"												

NUMBER	OBJECT	R.A.	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1185	106 Her	18 18.2	+21 57		0326	0326	10s	1h14mW	1"		100μ / 0.4		4.98	MO III	NeA	4s		IIaO	M-5 07E 15m	Mack	HR 6868
	R Oph	17 06.1	-16 05.8		0439	0444	5m	3h50mW	"				7.0	M							
	Z Oph	17 18.6	+01 43.5		0509	0514	5m	4h13mW	"				7.6	M							
	2 Peg	21 27.7	+23 25		0532	0532	12s	11mW	"				4.76	M1 III							HR 8225
1186	2 Peg	21 27.7	+23 25		0608	0608	15s	47mW	"				4.76	M1 III							HR 8225
	T Tuc	22 39.3	-61 41.9		0650	0658	6m	27mW	"				7.7	M							
	β Peg	23 00.9	+27 49		0710	0714	3m	21mW	"				2.6	M2+Fb IIIa							HR 8775
1187	K Ser	15 46.5	+18 18	Aug 4/5	2331	2331	10s	5mE	2"				4.3	M1 III							(cont)
	50 Her	16 44.0	+29 54		2338	2339	30s	1h E	"				5.8	MO IIIa							"
	RR Sco	16 55.5	-30 32.1		0008	0024	15m	19mE	3"												DM 30136 26
	RR Sco				0027	0039	10mm	4mE	"												DM 30136 20
1188	ζ¹ Her	17 12.4	+14 26		0158	0158	5s	1hW	4"				3.9	M5Ib-II							(cont)
					0159	0159	5s	"	"				"	"							"
	104 Her	18 10.5	+31 23		0200	0200	12s	"	"				4.9	M3 III							Cont + end
1189	106 Her	18 18.2	+21 57		0342	0342	20s	1h35mW	4"				4.4	MO III							(cont)
	RY Oph	18 15.4	+03 40.4		0358	0415	15m	2h14mW	4"												
	2 Peg	21 27.7	+23 25		0436	0436	20s	1h20mE					4.17	M1 III							
	3 Aqr	20 45.5	-05 13		0443	0443	20s	4mW	3"												(cont)
1190	λ Aqr	20 50.4	-07 47		0502	0502	10s	1h34mE	5"				3.7	M2.5 IIIa							
					0505	0505	6s	"													
	55 Peg	23 04.9	+09 12		0510	0510	30s														
					0511	0511	20s														
1191	K Ser	15 46.5	+18 18	Aug 5/6	2323	2323	12s	8mE	3"				4.3	M1 III							
	50 Her	16 44.0	+29 54		2327	2328	30s	1h6mE					5.8	MO IIIa							
	10 Her	16 09.5	+23 37		2333	2334	30s	15mE					5.4	M4 III							
	δ Oph	16 12.1	-03 19		2342	2342	4s	16mE					3.0	M0.5 III							
1192	ζ Sco	16 26.4	-26 17		0005	0005	3s	8mE					1.1	M1.5Iab							
	RR Sco	16 55.3	-30 33.4		0033	0044	10m	4mW													
	Z Oph	17 18.5	+02 13.5		0110	0128	15m	26mW													
	R Pav	18 10.1	-63 37.7		0218	0233	15m	38mW													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1193	α^1 Her	17 12.4	+14 26		0316	0316	4^s	2^h22^m W					3.9	M5Ib-II							Cirrus
	106 Her	18 18.2	+21 57		0321	0322	20^s	1^h20^m W					4.9	M0 III							"
	104 Her	18 10.5	+31 23		0329	0330	30^s	1^h36^m W					4.9	M3 III							"
	2 Peg	21 27.7	+23 25		0338	0338	20^s	1^h35^m E					4.8	M1 III							
1194	3 Aqr	20 45.5	-05 13		0403	0404	30^s	26^m E					4.4	M3 III							
	λ Aqr	22 50.4	-07 47		0411	0411	10^s	2^h24^m E					3.7	M2.5 IIIa							
	T Tuc	22 38.1	-61 56.7		0456	0524	25^m	1^h E													
	S Scl	00 14.1	-32 10.6		0550	0604	25^m	2^h13^m E													Cirrus
1195	ϕ Aqr	23 12.3	-06 15		0629	0630	25^s	23^m E					4.2	M1.5 III							"
	30 Psc	23 59.9	-06 14		0636	0637	25^s	1^h E					4.4	M3 III							"
	55 Peg	23 04.9	+09 12		0644	0645	30^s	1^m W					4.5	M1 IIIab							"
	"	"	"		0645	0646	20^s	"					"	"							"
1196	PKS1925-524	$19^h27^m.8$	$-52°27'$	#15 Aug 76	0014	0114	1^h	1^h21^m E	~4"/clear	342	100μ/1.6	112/#12	~11.5	dF8	NeHr	2^s		IIa-D	IV-S	C.S.	operating in 1st order with HR symbol
1197	"	"	"		0222	0320	1^h58^m	1^h45^m W			130μ/1.6										"
	HR7055						$60^s, 120^s$														"
1198	PKS1925-524	"	"		606	636	30m	4^h05^m W	4/"	"	130μ/1.6	112/7									in 2nd order
	HR7055	$20^h32.6$	-13 57				$15^s, 30^s$	3^h10^m W	6"												
1199	β Aql	19 51	-5 46		0825	0912	10^m25^s	1^h00^m W	4"/		150μ/1.2	112/7	3.84	B7V							Cirrus
1200	PKS1921-524			15 Aug 76	23.36	00.10	34m	2^h20^m E	4"	342	130μ/1.6	112/7.0	~11.5	~dF8p	NeHr	2s	~	IIa-D	IV-S	C.S.	
	"				00.14	00.55	40m														
	"				01.09	01.51	42m	0^h33^m E													
	"				02.28	03.08	40m	0^h56^m W													
1201	HD 1[illegible]13	19 22.3	+13 05	15 Aug 76	04 29	43 55	2m 16s	1 30 W	.4"		70μ/1.2	112/7.0	6.7	B7 Ia				IIa-D	IV	MG	Cirrus
	HR [illegible]e				43.7	434	4 30	1 45													
	"				436	437	1m	2 07													
	HR 338	1 04.2	-55 47		456	500	17/8/4	1 23	.4"				3.84	B7V							
	HR 6938	18 24.6	-45 50		521	530	9s/45/20	3 56					5.33	B4III	NeHr	2s					
1202	ϵ Tuc	?	?		614	622	32s/12/6	0 40													Lottery star
	ϵ Tuc	23 54.7	-66 08		703	713	24s/12/6	0 12	4"				4.39	B9IV							
	[illegible]	3 49.7	-24 54		715	718	30/15/8	1 [illegible]							NeHr	2s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1203	17 Tau				0912	0914	603/15	13m E	7-8'				5.4	B3 V	Hg-Ne	2s					
	17 Tau				0920	0924	16,2,4	12m E	7-8'				3.54	B3 III							
	5 Per				0925	0926	2,4,8	14m E	7-8'				2.76	B1 Ia							
1204	5 Per				0949		3/4/2														5 Per, Hilt
1205	22 Sco	16 24.1	-24 54	17/Sept/76	2326	2327	20s/24	00h 01m W	7-8"		70μ/1.3	12/7°	4.65	B2 V				Tull	[illegible]	MG	
					2331	2332	40s/50	06m W													
					2334	2335	10s/10	00 10m W							Neon	4s		Tull			red pair, all prism
	HR 6164	16 29.4	-42 39		2344	2347	96s/109	00 16m W	5-6"				5.58	B9 Ia							plate shear + I.T.
					2348	2349	43s/60s	00 19m W													
					2351	2352	24s/✓	00 21m W					2.83		Hg-Ne	4s					
	τ Sco	16 29.6	-28 01		0000	0001	12s/18s	00 26m W					3.03	B0 V							red pair, more prism 12 Hr=18
					0005	0006	6s ✓	00 35m W	4"												
					0006	0007	3s ✓	00 36m W													
1206	22 Sco	16 24.1	-24 54		0038	0039	40s/50s	1 15 W	4"-5"				4.65	B2 V				Tull		MG	
					0041	0042	20s/23s	1 16 W													
					0042	0043	10s ✓	1 17 W							Ne Hg	4s					
	HR 6161	16 29.3	-42 [illegible]		0047	0052	96s/✓	121 W					5.52	B9 Ia							
					0053	0054	48/42	123 W													
					0055	0056	24/20	126 W							Ne	4s					
	τ Sco	16 24 6	-28 01		0101	0102	12s/	131 W					3.03	B0 V							
					0102	0103	6s/	132 W													
					0103	0104	3s/	133 W													
1207	HD 157243	17 17.0	-44 04		0127	0128	28s/✓	1 09 W	5"				[illegible]	B7 III							
					0130	0131	14/✓	1 12 W	4"												
					0132	0133	7/✓	1 15 W							Ne Hg	4s					
	67 Oph	17 55.6	+2 56		0144	0145	20s/✓	0 49 W					3.91	B5 Ib							
					0146	0147	10s/✓	0 52 W													
					0148	0149	5s/6	0 54 W							Ne Hg	4s					
	μ Sgr	18 07.8	-21 05		0159	0200	10s/12	0 51 W					4.10	B9 Ia							
					0204	0202	5s/✓	0 53 W													

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 128

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1					0205	0204	3/—	055													
1208	ζ^2 Tel	18 24.6	-45 50		02 26	02 27	48^s/57	1 00 W					5.33	B4 III							
					02 30	02 31	24^s/✓	1 05 W													
					02 32	02 34	12^s/13	1 07 W							Ne4	4^s					
	HD 133143	19 22.8	18 05		02 47	02 51	3^m/2^{m}47	0 28 W					6.62	B7 Ia	"						
					02 52	02 54	1^{m}32^s/✓	00 32 W													
					02 56	02 57	45^s/55^s	0 34 W							Ne4	4^s					
	HD 190603	20 00.7	+31 56		03 06	03 08	1^{m}48^s/1^{m}33^s	00 09 W					5.45	B1.5 Ia							
					03 10	03 11	56^s/48	00 12 W													
					03 12	03 13	27^s/	00 13 W													
1209	10 Lac	22 38.2	38 56		04 43	04 45	90^s/—	0 48 E					4.88	O9 V							
					04 47	04 48	45^s/—	0 46 E													
					04 49	04 52	10^s/✓	0 41 E	2"-5"						Ne4	4^s					
	ζ Phe	1 07.4	-55 22		05 05	05 06	10^s/	2 57 E					3.84	B7 V	"						
					05 07	05 08	5^s/	2 55 E													
					05 08	05 09	2^s/	2 54 E							Ne4	4^s					
	18 Tau	3 43.8	+24 47		06 22	06 25	30^s/2^m	3 35 E					5.56	B8 V							
					06 27	06 29	4^s/50^s	3 30 E													
					06 30	06 32	10^s/25^s	3 27 E													
1210	o Per	3 12.3	+32 13		06 59	07 02	54^s/1^m	3 35 E	4"-5"				3.83	B1 III							
					07 06	07 08	27^s/30^s	3 30 E													
					07 10	07 11	14^s/14^s	3 26 E													
	27 Tau	~~3 47.8~~ ~~27 Tau~~	+23 59		07 26	07 27	13^s ✓	3 16 E					3.54	B8 III						Cloud.	
					07 27	07 29	9^s/✓	3 15 E													
					07 29	07 30	5^s ✓	3 13 E							Ne4	4^s					
	ζ Per	3 52.6	+31 49		07 43	07 47	40^s/55^s	3 00 E					2.96	B1 Ib							
					07 48	07 49	20^s/✓	2 58 E													
					07 50	07 51	10^s/✓	2 57 E													

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1211	β Ori	5 13 4	-8 13		0836	0837	72^s/70^s	322E	4"				-05	B8Ia							-5 mag next star
					0838	0839	36^s/43^s	324E													
					0840	0842	18^s/✓	326E							Neon	4^s					
	τ Ori	5 16.5	-6 47		0850	0851	16^s/	328E	4"				3.47	B5 III							
					0851	0852	8^s/	319E													
					0852	0853	4^s/	318E							Ne Hg	4^s					
	ψ Ori	5 23.9	+6 20		0905	0909	3^{m}18^s/3^{m}08^s	309E	4"				1.41	B2 III							not class
					0910	0912	1^{m}39^s/1^{m}24^s	307E													
					0913	0914	60^s/45^s	305E													too much pressure
1212	LS-37	18 42.2	-3 39	18/19	2340	0147	2^{h}5^m/✓	013W	4"		70μ/1.8	112/7°	11 6	O8(f)	Ne Hg	4^s					
	LS-4°71	18 383	-4 37		0224	0426	2^{h}5^m/✓	258W	4"				11.6	OBR	Ne Hg	4^s					
1213	P del'Amicat	22 25 4	-22 13		0646	0658	12^m/✓	142W	4"				~8.5	?	Ne Hg	4s					
					0658	0704	6^m/✓	148W													
					0705	0708	3^m/✓	152W													
					0709	0710	1^{m}5^s/✓	0754W							Ne Hg	4^s					
1214	27 Tau	3 47.8	+23 59		0804	0805	24^s/32	234E					3.54	B3 III							C Rands
					0807	0808	12^s/16	231E													
					0809	0810	6^s/8	229E	5"						Ne Hg	4^s					
	42 Ori	5 34.2	-4 51		0823	0824	60^s/✓	402E					4 40	B1 V							
					0825	0826	30^s/45^s	400E													
					0827	0828	15^s/✓	358E							Ne Hg	4^s					
	i Ori	5 34.3	-5 56		0836	0837	10^s/12^s	348E					2.5:	O9 III							
					0837	0838	5^s/✓	347E													
					0838	0839	3^s/✓	346E													
1215	ε Ori	5 35.0	-1 13		0907	0915	8^m/✓	312E					1.51	B0 Ia							neutral dens
					0916	0920	4^m/✓	307E													
					0921	0923	2^m/✓10	304E							Ne Hg	4^s					
	χ² Ori	6 27 3	-32 34		0938	0939	42^s/	340E					4.29	B4 V							
					0941	0942	21^s/	336													
					0943	0944	10^s/	334E							Ne Hg	4^s					

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	η Aur	5 04.9	+41 13		0950	0951	24^s	3 12 E	4-5"				2.99	O3 V							
					0951	0952	12^s	3 11 E													
					0952	0953	6^s	3 10 E													
1216	HD 46150	6 30.7	+4 57	~~Aug 23~~ ~~1976~~			~~7~~ 00														Too bright
							330														
							1 45														
1217	RR Sct	18 39.7	-4 07	Aug 23 1976	0026	0106	40^m/ ✓	0 03 E	5-6"	34u	70μ/2	112/7	9.7	B7 Ia	NaH$_2$	7^s		II-O	II-P	H$_2$	
	LS -4° 15	18 39.9	-4 24		0132	0332	2^h/ ✓	2 25 W	4"				11.7	O8.5 f							
	LS -4 21	18 44.2	-4 39		0346	0259	15 20^s/ ✓	2 46 W	4"				8 9	O6.5 f	NaH$_2$	7^s					
1218	6° CMa	7 02.0	-23 49		922	923	10^s ✓	4 09 E	4"				3.21	B3 Ia							
					923	924	5^s ✓	4 09 E													
					924	924	2^s ✓	4^{h}09 E							NaH$_2$	7^s					
	τ CMa	7 17.8	-24 57		0937	0939	32" ✓	3 55 E	4"				4.4	O9.5 Ib							
					0938	0939	16" ✓	3 54 E													
					0939	0940	8" ✓	3 53 E													
	η CMa	7 23.2	-29 15		0945	0945	4^s ✓	4^h E					2.37	B5 Ia							
					0945	0945	2^s	4^h E													
					0945	0946	1^s	4^h 00 E													
1219	LS -4° 16	18 40.0	-04 -2	Aug	2345	0045	20^m	0^h	5"	34u	70μ/2	112/7	11.2	O8				II-O	MS/15/11	H$_2$	
	LS -4° 17	18 44.0	-04 49		0055	0146	50^m/51	0^h 57 W	3"/4"				11.0	O8							
	RU Sct	18 48.2	-04 06		0202	0218	16^m	1 30 W					9.3		NaH$_2$	10^s					
1220	22 Sco	16 28.7	-25 04		0323	0325	2^m/2^m	4 54 W		34L	70μ/2	112/7	4.65	B2 V	NaH$_2$	10^s		I-O			
					0325	0	1^m/50	5 55 W													
					0326	0	30^s/	7 50 W													
	HR 6164	16 34.7	-42 49		0337	0344	4^m 30^s/ 5^m	5 07 W	2.5"/4				5.49	B9 Ia							
					0342	0344	2^m 15^s/2 05	5 09 W													
					0344	0345	1^m 10^s/ ✓	5 10 W													
	τ Sco	16 34.4	-28 11		0356	0356	3^m 6^s	5 16 W					2.82	B0 V							
					0356	0357	1^m	5 17 W													
					0357	0358	9^s	5 18 W													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	HD 157243	17 22.6	-44 09		04 08	04 11	$2^{m}40$ / 2^{50}	4 47W					5 05	B7 III							
					04 11	04 13	$1^{m}20$ / 1^{28}	4 49W													
					04 13	04 14	40^{s} / 38	4 50W													
	67 Oph	17 59.5	+2 56		04 25	04 27	$1^{m}20$ / ✓	3 21W					3.99	B5 Ib							
					04 27	04 28	40^{s} / ✓	3 22W													
					04 28	04 29	20^{s} / ✓	3 23W													
1221	μ Sgr	18 12.2	-21 04		05 34	05 36	2^{m} / ✓	5 18W					4.10	B9 Ia	N [illegible]	45^{s}		[illegible]			
					05 36	05 37	1^{m} / ✓	5 19W													
					05 37	05 38	30^{s} / ✓	5 20W													
	δ^2 Tel	18 30.3	-45 47		05 45	05 49	4^{m} / ✓	5 14W					5 30	B4 III							
					05 49	05 51	2^{m} / ✓	5 16W													
					05 51	05 52	1^{m} / ✓	5 17W													
	10 Lac	22 38.2	+38 56		06 07	06 11	3^{40} /	1 27W					4.68	09 ✓							
					06 11	06 13	1^{50} /	1 29W													
					06 13	06 14	55^{s} /	1 30W													
	ε Tuc	23 58.7	-65 42		6 26	6 27	50^{s} / ✓	0 23W					4 39	B9 IV							
					6 27	6 28	25^{s} / ✓	0 24W													
					6 28	6 29	12^{s} / ✓	0 25W													
	ζ Phe	1 07.4	-55 22		06 39	06 40	40^{s} / ✓	0 32E					3 84	B7 V							very faint
					06 40	06 41	20^{s} / ✓	0 31E													[illegible]
					06 41	06 42	10^{s} / ✓	0 30E													[illegible]
1222	o Per	3 42.9	+32 13		07 15	07 17	1^{45} / ✓	2 31E					3 88	B1 III	[illegible]	45^{s}					
					07 17	07 18	50 / ✓	2 30E													
					07 18	07 19	25 / ✓	2 29E													
	18 Tau	3 43.8	+24 47		07 28	07 33	5^{m} / ✓	2 15E					5 56	B8 V							
					07 33	07 35	2^{30} / ✓	2 13E													
					07 35	07 37	1^{15} / ✓	2 11E													
	27 Tau	3 47.8	+23 59		07 43	07 44	40^{s} / ✓	2 10E					3 54	B8 III							
					07 44	07 45	20^{s} / ✓	2 09E					~~3 54~~								
					07 45	07 46	10^{s} / ✓	2 08E													

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	ζ Per	3 52.7	+31 49		756	757	36s / ✓	2 00E	2.5"/pht				2.96	B1 Ib							
					757	758	18s / ✓	1 59E													
					758	759	9s / ✓	1 58E													
	τ³ Eri	3 52 7	-24 40		0809	0810	60s / ✓	1 47E					4.49	B6 V							
					0810	0811	30s / ✓	1 46E													
					0811	0812	15s / ✓	1 45E													
1223	β Ori	5 13 4	-8 13		0837	0840	2 40 / ✓	2 38E					0.05	B8 Ia	NeHg	45s					[illegible]
					0840	0842	1 20 / ✓	2 36E													
					0842	0843	40s / ✓	2 35E													
	τ Ori	5 16.5	-6 47		0850	0851	20s / ✓	2 30E	2"/pht				3.47	B5 III							under exposed
					0851	0852	10s / ✓	2 29E													
					0852	0853	5s ✓	2 28E													
	γ Ori	5 23.9	+6 20		0900	0901	4s / ✓	2 26E					1.41	B2 III							"
					0900	0901	2s / ✓	2 26E													
					0900	0901	1s / ✓	2 26E													
	42 Ori	5 34.2	-4 51		0911	0912	50s / ✓	2 27E					4.40	B1 V							"
					0912	0913	25s / ✓	2 26E													
					0912	0913	12s / ✓	2 26E													
	i Ori	5 34.3	-5 56		0920	0920	4s / ✓	2 19E					2.52	O9 III							
					0920	0920	2s / ✓	2 19E													
					0920	0920	1s / ✓	2 19E													
1224	ε Ori	5 35.0	-1 13		934	934	4s / ✓	2 05E					1.51	B0 Ia							
					934	934	2s / ✓	2 05E													
					934	934	1s / ✓	2 05E													
	λ CMa	6 27.3	-32 34		944	945	40s / ✓	2 48E					4.29	B4 V							
					945	945	20s / ✓	2 47E													
					945	0945	10s / ✓	2 47E													
	σ² CMa	7 02.1	-23 48		0952	0952	15s / ✓	3 14E					2.96	B3 Ia							double space
					0952	0952	8s / ✓	3 14E													
					0952	0952	4s / ✓	3 14E													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U T EXP. BEGIN	U T EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	τ CMa	7 17.8	-24 54		0958	0959	$44^s/40$	3^h24E	2"/phot				4.25	09 I b							getting very bright
					0959	0959	$22^s/20$	3^h23 E													
					0959	0959	$11^s/12$	3^h23E													
1225	HD 183143	19 26.2	+18 14	Aug	0309	0314	$5^{12}/5^{32}$	1^h48 W	3"/phot	[illegible]	10 [illegible]	112/701	6.69	B7 Ia	Nelly	45^s		[illegible]	M/67°/15m	M/a	
	6633-32	18 25.5	+06 28	31	0327	0351	24^m/✓	3^h27W					7.00	—							star no's are for
	-66	18 26.1	+06 33	1976	0352	0440	48^m/✓	4^h14W					8.21	—							NGC 6633 and are
	-117	18 26.9	+06 14		0445	0451	$5^m/6^m$	4^h24W					5.70	—							from Hiltner et al
	β Aqr	21 30.3	-5 41		0453	0454	25^s/✓	1^h30W					3.73	G0 Ia							Ap J 127, 158
1226	β Aqr	21 30.3	-5 41		0538	0539	$50^s/57^s$	2 08W					3.73	G0 Ia							
					0539	0540	$25^s/26^s$	2 09W													
					0540	0540	12^s/✓	2 09W													
	ε Peg	21 43.0	+9 46		0546	0547	80^s/✓	2 04W					3.77	K2 Ia							
					0547	0548	40^s/✓	2 05W													
					0548	0549	20^s/✓	2 06W													
	9 Peg	21 43.4	+17 14		0557	0604	7^{12}/✓	2 22W					5.54	G5 Ib							
					0604	0608	3^{36}/✓	2 26W													
					0608	0610	1^{48}/✓	2 28W													
	12 Peg	21 45.0	+22 50		0618	0641	$22^{50}/23$	2 57W					6.72	K0 Ia							
					0641	0654	$11^{24}/12^{30}$	3 10W													
					0654	0700	$5^{42}/6^{20}$	3 15W													
	ν Peg	22 04.5	+4 56		0708	0720	12^m/✓	3 16W					6.28	F8 IV							
					0720	0726	6^m/✓	3 22W													
					0726	0729	3^m/✓	3 25W													
1227	α Aqr	22 04.6	-00 26		749	751	1^{36}/✓	1 47W					3.91	G2 Ia							
					751	752	48^s/✓	1 48W													
					752	753	24^s/✓	1 49W					~~[illegible]~~								
	χ Peg	0 13.4	+20 05		0802	0816	14^{24}/✓	2 02W					6.38	M2 III							
					0817	0824	7^{12}/✓	2 10W													
					0825	0829	3^{36}/✓	2 16W													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	4^3 Psc	1.08.6	+19 32		0840	0855	15m / ✓	147W					5.51(v)	B0 III							ΔB-V = 1.0
					0856	0904	7m30 / ✓	156W													
					0904	0908	5m45 / ✓	2m00 W													
	β Ari	1 53.0	+20 44		0919		32s / ✓						2.78	K5 V							
							16s / ✓														
						920	3m / ✓	127W													
	16 Per	2 49.1	+38 13		0930	0934	4m /	045W					4.56	F2 III							
					0934	0936	2m /	047W													
					0936	0937	1m /	048W													
1228	τ Sco	16 34.4	-28 11	Sept 2	2330	2330	12s / ✓	100W	3"/clear	342	100μ/6	11.4 / 6.19	3.03	B0 V	Neb	60s		11 60		HG	1m ✓
	6633-67	18 25.7	+6 59	1976	2343	0023	40m / ✓	002W					8.74	—							
	" -97	18 26.3	+6 30		0026	0106	40m / ✓	045W					8.40	—							
	" -92	18 26.1	+6 31		0108	0154	46m / ✓	134W					8.36	—							
	" -137	18 27.0	+6 23		0156	0249	53m / ✓	228W					8.93	—							
	" -31	18 25.6	+6 22		0252	0357	65m / ✓	335W					8.99	—							
	α Aqr	22 04.6	- 0 26		0400	0401	26s / ✓	000					2.91	G2 Ia							
1229	HD 190603	20 03.7	+32 09		0443	0453	10m / ✓	255W					5.45	B1.5 Ia	Neb	60s					
					0453	0458	5m00s / ✓	301W													
					0458	0501	2m30s / ✓	304W													
	~~HR 7662~~	~~20 02.2~~	~~+18 27~~										~~5.00(v)~~								at 5-1 ✓
	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~																		
	COMET 1	23 54.8	-37 02		0534	0634	60m / ✓				100μ/8			4.760	Ne	60s					2nd ✓
	Great																				
	HR 856	2 51.9	+16 24		0647	0714	30m / 27	130E			100μ/6		6.24(v)	F5 III							2nd ✓
					0714	0731	15s /	114E													V50 great!
					0731	0739	7m30 /	106E													
	K Cet	3 18.1	+3 17		0819	0823	4m	049E					5.50	G5 V							
					0823	0825	2m	047E													
					0825	826	1m	046E													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1230	θ^2 Tau	4 27.3	+15 50		0851	0852	60^s / ✓	1 28 E					3 57	A7 III	Neon	0^m3					
					0852	0852	30^s / ✓	1 28 E													
					0852	0852	15^s ✓	128 E													
	β Eri	5 06.7	-5 07		0859		26^s / ✓	200 E					2 93	A3 III							
							13^s / ✓	2 00 E													
						0900	6^s / ✓	2 00 E													
	α Lep	5 31.7	-1750		0907		20^s / ✓						2 81	F0 Ib							
							10^s / ✓														
						0908	5^s / ✓	2 16 E													
	T Ori	5 16.5	-6 47		0915		36^s / ✓						3 47	B5 III							
							18^s / ✓														
						0916	9^s / ✓	153 E													
	ψ Ori	5 23 9	+1 20		0920		5^s / ✓						1 41	B2 III							
							25^s / ✓														
						0921	1^s / ✓	1 56 E													
123	ι Ori	5 34 3	-5 56		933		18^s / ✓						2 5	O9 III							
							9^s / ✓														
						934	4^s / ✓	1 53 E													
	42 Ori	5 34.2	-4 51		940	941	1^m30^s /	1 43 E					4 40	B1 V							
					942		45^s /														
						0943	22^s /	0 46 E													
	η CMa	7 23.2	-29 15		951		16^s						2 33	B5 Ia							
							8^s														
						0952	4^s	3 24 E													
	δ CMa	7 17.5	-26 21		954		20^s /						1 85	F8 Ia							
							10^s /														
						955	5^s /	3 20 E													
	ζ Pup	7 +2 7	-2 54		10 00	10 02	1^m24^s	3 33 E					4 12	A1 Ia							
					10 02	10 03	42 /	3 32 E													
					10 03	10 03	21 /	3 32 E													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1232	6633-56	18 25.7	+6 31	Sept 7	23 45	00 39	54m / ✓	0 30 W	3"/phot	342	100μ/t	112/700	9.03	–	Ne A	60s		[illegible]	[illegible]	MG	full moon
	-116	18 26.5	+6 35	1976	00 41	1 59	1h13m / ✓	2 30 W					9.44	–							
	-17	18 25.2	+6 31		2 13	3 37	1h23/24	3 38 W					9.25	–							
	-139	18 27.1	+6 50		3 40	4 30	50m / ✓	4 30 W					8.12	–							
1233	α Cet	3 01.1	+4 00		09 00		2m / ✓		3" phot	240	50μ/t	67/445	4.16	gM2	Ne A	60s					
							1m / ✓														
							[illegible]														
						09 05	30 ✓	0 32 W													
	10 Tau	3 35.7	+0 20		9 13		4m ✓						4.80	[illegible]							
							3m ✓														
							2m ✓														
						9 23	1m ✓	0 15 W													
	α Tau	4 34.5	+16 28		9 34		40s ✓						2.39								
					~~9 34~~		30s ✓														
							20s ✓														
							10s ✓														
						9 36	5s ✓	0 30 E													
1234	6633-140	18 27.2	+6 40	Sept 8	23 57	1 17	1h20m / ✓	1 20 W	2" [illegible]	342	100μ/t	[illegible]	9.85	–	Ne A	60s		[illegible]	[illegible]	MG	[illegible]
	-134	18 27.2	+6 44	1976	1 19	2 59	1h40m / ✓	3 02 W					10.00	–							
	-14	18 25.5	+6 29		3 01	4 04	1h / 1h02	4 09 W					9.38	–							
1235	HR 8929	23 30.2	-44 59		5 07		12m /	0					7.[illegible]	K0 III							
							6m /														
						5 30	3m /	0 31 W													
	HR 9102	0 03.2	-29 24		5 34		7m /						6.39	A0 V m							
							3m /														
						5 47	45 /	0 15 W													
	HR 100	0 25.1	-43 48				48s /						4.10	A7 V m							
							24s /														
						5 57	12s /	0 03 W						~~K7 V m~~							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	HR 151	0 35.0	-22 59		6 04		2m / ✓	000W					6.55	A7p							
							2m / ✓														
						6 32	4m, ✓	028W													
	HR 359	1 11.7	-37 59		6 39		4 36, ✓						6.20	A7 III							
							2 18 / ✓														
						643	1 39, ✓	007W													
1236	HR 474	1 37.7	-25 09		7 07		2m, ✓						00	A9 V	1/2 m	60s					plate fogged
							4m, ✓														
						721	2m ✓	014W													
	HR 616	2 01.5	-27 47		7 27		7m, ✓						6.4(V)	A3 m							
							3 30 / ✓														
						739	1 45, ✓	008W													
	HR 612	2 03.5	-2 25		7 43		1 12 / ✓						4.51	A0 sc							
							36 / ✓														
						745	18 3, ✓	012W													
	HR 652	2 11.9	-30 50		7 50		2 24 / ✓						5.25	A1 V							
							1 12 / ✓														
						755	36, 50 ✓	014W													
	HR 733	2 47.2	-25 17		8 01		10m / ✓						6.80	dA9							
			~~-25 17~~				5m / ✓														
						819	2 36 / 2 50	021W													
1237	Tau IV	3 56.5	+19 18				3m 3 45						5.5	G0 V	1/2 m	60s					
							1 30 / ✓														
						3 48	+5 5, ✓	037E													muiced cloud
	HR 1179	4 26.7	+15 07		8 03 914		3m /						6.-	F3 V							
							1														
						924	2	035E													
	HD 27524	4 20.1	+21 00		933		20 /						7.5	F5 V							
							10m /														
						10 08	5 /	019E													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1238	2553-122	18 26.7	+65 5	Sept 9	2351	121	1[30] / ✓	1 28 W	3 / 2.5	3-2	100 μ / 1.6	.12 / 300	9.77	—	H&K	60[s]		I-a-0	H&K / 15 / 6.5	MG	- new developer
	-25	18 25 4	+6 2H	1976	123	1 13	50[m] / ✓	2 21 W					9.25	—							
	-09	18 26.4	+6 27		221	321	60[m] /	3 29W					9.36	—							
	147-559	18 27.3	+6 H'		323	418	50[m] / 55	4 27 W					~~8.70~~ 9.21	—							
1239	HR 9044	23 53.2	-27 10		5 1H		10[m] / ✓						6.54	A m	H&K	60[s]					double, both on slit
							5 / ✓														
						532	2[30] / ✓	0 1H W													
✗	HR 61	0 15.5	-20 20		538		2[m] / ✓						6.36	B8							
							4[m] / ✓														
						553	2[m] ✓	0 12W													
	HR 185	0 41.6	-33 36		5 57		3[36] / ✓						6.21	A0 V							
							1[48] / ✓														
						604	54[s] ✓	0 04E													
	HR 220	0 46.9	-21 51		6 13		3[24] / ✓						5.50	B8 V							
							1[42] / ✓														
						619	51[s] ✓	0 07 W													
	HR 293	1 01.3	-31 40		626		3[36] / ✓						5.58	A2 V							
							1[48] ✓														
						632	54[s] ✓	0 06 W													
1240	HR 400	1 22.5	-31 04		648		20[m] / ✓						7.47	K5 III							
							10[m] / ✓														
						722	5[m] ✓	0 35W													
	ε Eri	3 31 9	-9 32		823		2[m] ✓						4.06	K2 V							
							1[m] ✓														
						827	30[s] ✓	0 30 E													
	α Tau	4 34.6	+16 23		832		18[s] / ✓						2.59	K5 III							
							9 / ✓														
						833	4 / ✓	1 46E													

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	α Dr	5 53.9	+7 24		8 41		24s/✓						2.66	M2 Ia							
							12s/✓														
						8 42	6s/✓	2 37E													
	α CMa	7 00.8	-27 53		8 50		5s/✓						5.20	K7 Ia							
							10s/✓														
						8 56	15s/✓	3 29E													
1241	γ² Dr	6 02.5	+20 08		9 12		3s/✓						4.90	K2 Ia	Neh	60s					
							10s/✓														
						9 18	15s/✓	2 09E													
	HD 46150	6 30.7	+4 57		9 26		0s/✓						6.41	O5							
							5s/✓														
						9 44	2s/✓	[illegible]													
	η Aur	5 04.9	+41 13		9 54		20s/✓						2.99	B3 V							
							15s/✓														
						9 55	7s/✓	1 34E													
	ρ Aur	5 20.2	+41 47		10 00		4s/✓						4.91	B5V							
							2s/✓														
						10 07	1s/✓	0 38E													
1242	HR 652	2 11.9	-30 50	[illegible]	7 30		2s/✓		2"/cirrus	342	100μ/1.6	112/700	5.25	A1V	Neh	60s		[illegible]		HG	
							1s/✓														
						7 34	16s/✓	0 09W													
	HR 724	2 27.1	-31 55		7 40		2s/✓						5.22	A2 IV							
							1s/✓														
						7 44	[illegible]	0 04W													
	HR 777	2 37.3	-30 17		7 54		6s/✓						6.30	dF6							
							3s/✓														
						7 54	1s/✓	0 14W													
	HR 893	2 56.6	-37 17		8 12		6s/✓						6.37	A0							
							3s/✓														
						8 23	1s/✓	0 13W													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	HR 994	3 19.3	-22 36		831		3^m8 / ✓						5.27	g5 V							
							1^m5 / 1^s	2 hrs interchanged in plate													
						838	5^m8 / 1^s	0.08W													
1293	15 Hor	6 39.7	+9 55		858		1^m / ✓						4.40	G7							
							45^s / ✓														
						901	22^s / ✓	2.50E													
	HR 2729	6 42.4	-3 58		907		4^m / ✓						1.74	B5 III							3
							2^m / ✓														
						915	1^m / ✓	2.40E													
	13 Mon	6 41.7	+7 21		920		1^m30 / ✓						3.50	A0 Vs							
							45^s / ✓														
						923	22^s / ✓	2.32E													
	p Gem	7 07.6	+21 50		938		4^m48 / ✓						4.21	F0 II							
							2^m4 / ✓														
						946	1^m / ✓	2.55E													
	53 Eri	4 37.1	-11 41		955		1^m / ✓						4.96	K2 III							
							54^s / ✓														
						958	27^s / ✓	0.09W													
1294	x Aur	4 58.5	+30 58	Sept 12	831		1^m / ✓		2.0 arcsec	342	2148	12/200	4.90	B2 Vn	Hβ	Hγ		Ea D	HS/15"/15"	HC	3 ^m
							2^s / ✓														
						835	2^s / ✓	2.22E							UV	45^s					
	α Lyn	6 30.7	+59 7		845		1^m / ✓						3.14	G0							
							45^s / ✓														
						900	2^m / ✓	2.37E							UV	45^s					
	HR 2324	6 42.4	+1 37		951		5^m / ✓						5.74 V	B8 Vs							
							2^m / ✓														
						935	2^m / ✓	2.40E													
1295	15 Mon	6 39.7	+9 55		9 21		2^m / ✓						4.40	G7							
							5^s / ✓														
						922	2^s / ✓	2.10E							UV	45^s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV.	OBS.	REMARKS
	ρ Aur	5 20.2	+41 9′		9 30		30^s / ✓						4.91	E5 V	NeA	4^s					
							10^s / ✓														
						931	5^s / ✓	0 32E													
	H[redacted]																				
1246	χ Aql	22^h 20 4	−1° 30′ 5	[redacted]	2 45	[redacted]	[redacted]			58+2	[redacted]	342	4.0	A0	Ne A	5^s 4^s				BB/Max	Cloudy — Hα response time test
1247	HR 6773	[redacted]	[redacted]		23 21		[redacted]	0 47W	3″ 3″	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]					
					23 36		5^m	0 56W	"	"	"	"	"		Ne A	2^s		"			
	HD 155555	17^h 15^m	−66° 5′ 3		23 53		10^m	2 10W	"	"	"	"	"	K1 V	"	"					
1248	70 Oph (A)	18 4 2	+2° 30′ 2	[redacted]	0 41		25^s	2 00W					4.0	K0 V	—	—					
	HD 176818	20^h 46 0	−80° 13′		1 46		37^m	1 12W					9.9	K0 IIIp	—	—					
	HD 213220	22^h 23 0	−66° 59′		3 13		45^m	0 53W	4″	[redacted]	"	8.36	9.4	G0 V	N. A	2					
1249	HD 5303	0^h 52 2	−74° 47′		5 25		15^m	0 11W	4-5″		"		7.9	G-K II+III	(C.T.) N. A	2″					
	HD 8435	1^h 21^m 4	−56° 51′		6 03		45^m	0 52W	"	"	"	"	9.9	G+K III/IV	—	—					
	HD 14643	2^h 17 7	−71° 35′		7 [redacted]		30^m	0 53W	"	"			8.8	G2 IIIp	N. A	2″					
1250	γ Eri	3^h 55.2	−13° 59′		3.20		20^s	0 54W	"	"	"	"	3.9	K1 III	(C.T.) N. A	2″					
	HD 18599	2^h [redacted]	−56° 17′ 5		3 47		5^m	2 05W	"	"	"	"	9.6	K5 V	N. A	2″					
1251	λ Pav	18^h 50.0	−62° 13′	[redacted]	23 43		25^s	0 19W	3″	342	[redacted]	[redacted]	4.2	B3 V	(C.T.) N. A	2″		IIaD			
	HR 6773	19^h 7 4	−25° 26′		23:53		5^m	1 17W					6.5		—	—					
	HD 173397	18^h 47 0	−62° 24′	[redacted]	0:14		45^m	1 37W	4″				7.3	F0 IIIp	—	—					
	HD 219066	23^h 12 3	−6[redacted]		3 05		45^m	1 00E					9.3	K2 IIIp	[redacted]	2″					
1252	57 Peg	23^h 12 2	+2° 33′		4 05		15^m	0 39W					9.[redacted]	K2+F4	(C.T.) N. A	2″					
	HD 15134	2^h 51 3	−61° 13′		4 42		50^m	1 52E					9.7	K2 III(p)	[redacted]	—					
	HD 32918	4^h 59 0	−75° 9′		6 08		5^m	2 34E					11.5	K0 IIIp	—	—					
	HD 34302	5^h 11 2	−77° 4′		7 26		23^m	1 56E					8.6	K2 IIp	[redacted]	2″					
1253	HD 36705	5^h 27 7	−[redacted]		8 23		7^m	1 52E	"	"	"	"	7.3	K3 IIIp	[redacted]	2″					
	HD 39587	5^h 51.9	−57° 10′		8 42		5^m	1 59E					7.3V	F7 V	—	—					
	HR 1628	5^h 1.7	−26° 19′		9:00		1^m	0 23[redacted]					5.0	gK0	—	—					Standard
	HR 1743	5^h 16.6	−34° 55′		9:11		45^s	0 39E	"	"	"	"	4.82	K0 III	N. A	2″					"

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 142

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A. 1970	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1254	o Aqr	22h01.8	−02°18′	23 Oct 1976	0142	0151	5m 2m 5 4m	1h15m W	1.5 / phot.	2.87	50μ / 1.2	67 / 445	4.7	B8	NeA	60s	NONE	II a-0	Metal Sulfide 67°F 15m		
	α Del	20h38.2	+15°48′		0156	0202	3m 2m 2m	2h48m W					3.7	B9 V							
	ν Cyg	21h16.7	+34°46′		0207	0218	4m 2m 6m	2h26m W					4.3	B2							
	λ Aql	19 41.7	−4°56′		0223	0228	3m 2m	4h46m W					3.4	B9							
	ε Aql	20 09.8	−0 55		0231	0233	1.5m 1.5	3h47m W					3.2	B9							
	η Aqr	22 33.8	−0 16		0236	0238	1.5 2m	1h28m W					3.9	B8							
1255	α And	0 06.8	+28 55	"	0348	0350	30s 40s	1h6m W	"	"	"	"	2.0	B9	"	"	"	"	"	"	
	β Peg	23 02.3	+27 55		0355	0400	4m 8m	2h21m W					4.2v	M2							left slide open when setting next * 15°C 40% H
	ζ And	0h45.7	+24°06′		0404	0423	19m 12m	1h0m W					6.4	K1							
	β Ari	1 53.0	+20 40		0436	0438	1m 1m	9m W					2.8	A5							
	β Tri	2h07.8	+34 51		0442	0448	1m 2m	4m W					3.1	A5							
	16 Per	2 48.7	+38 12		0452	0457	4m 6m	29m E					4.6	F2							
	π Per	2 56.8	+39 33		0459	0506	6m 8m	27m E					4.6	A2							
	ε ARI N	2 57.5	+21 13		0512	0523	10m 9m	10m E					5.6	A2							
	η Tau	3 45.7	+24 01		0530	0533	45s 60s	48m E					2.8	B7 III							
	β Per	3 06.2	+40 50		0538	0540	30s 40s	3m E					2.0	B8							
	ε Per	3 55.8	+39 56		0545	0549	45s 1m 15s 45s	42m E					2.7	B0.5 IV							
1256	ε Per	"	"	"	0640	0647	30s 55s 1m 45s	15m W	"	"	"	"	"	"	"	"	"	"	"	"	
	ζ Per	3 52.6	+31 49		0652	0703	1m 27s 2m 15s	36m W					"	B1 Ib							
	HR 1279	4 06.3	+15 06		0711	0739	4m 8m 16s 30m	57m W					5.4	F3 V							
	HD 27383	4 18.6	+16 29		0744	0804	20m 50s	1h10m W					7.4	F9 V							
1257	η Aur	5 04.7	+41 12		0815	0824	15s 30s 60s 1m 30s	44m W					3.0	B3 V							
	ζ Aur	5 20.0	+41 47		0526	0542	2m 4m 8m 12m	47m W					4.9	B5 V							
	χ¹ Ori	6 02.4	+20 08		0847	0905	2m 4m 8m 7m						4.9	B2 Ia							
1258	π² Cyg	21 45.7	+49 10	23/24 Oct. 1976	2344	0001	2s 5s 10m 15m	16m E	2-4" / phot. 2" "	2.87	50μ / 1.2	67 / 445	4.1	B3	NeA	60s	NONE	II a-0	Metal Sulfide 67°F 15m		
	α Del	20 38.5	+15 50		0007	0013	40s 60s 15m 20m	1h2m W					3.7	B9 IV							
	α Cyg	20 40.6	+45 11		0018	0021	8s 16s 30s 60s 5m	1h8m W					1.2	A2 Ia							
	σ Sgr	18 53.7	−26 20		0030	0038	15s 30s 60s 3m 5m	3h11m W					1.9	B2.5 V							
1259	10 Lac	22 38.2	+38 55		0054	0111	3s 4s 8m 3m	1m W					4.7	O9 V							
	α PsA	22 56.2	−29 45		0118	0120	6s 12s 24s 1m 15s	9m E					1.25	A3 V							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

Wind 0-5
T. 13°C
40% H

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1259	2 LAC	22 19.8	+ 46° 23'	23/24	0139	0148	8m / 10m	0h55mW	2" clear	2.87	50µ / 1.2	67 / 4.45	4.5	B6	NaA	60s	NONE	IIa-O	Metol Sulfite 67°F 15 min		
(CONT)	5 LAC	22 28.3	+ 47° 33'	Oct	0152	0236	44m / 80m	1h35mW	2-3"				6.0	M0+B							
	K And	23 38.7	+ 44 10	1976.	0238,5	0242	3.5m / 5m	1h02mW	"				4.1	B8							
	55 Peg	23 05.5	+09 15		0247	0320	35m ✓	1h42mW	"				6.1	M2							
	o Cas	0 43.0	+48 07		0324	0330	6m / 18m 5s	0h16mW	2" / "				4.5	B2+							
1260	γ Peg	0 11.9	+15 03	"	0347	0354	15,30,60,90s / 160m	1h9mW	2" / "	"	"	"	2.6	B2IV	"	"	"	"	"	"	last 4 spectra 1 Trail
	ψ³ Psc	01 08.5	+19 31		0359	0403	(10,20,32 / 130m	1 24W					6.0:	G0III							
	α Tri	01 ~~57.7~~	+29 28		0507	0515	1,2,4 / 4m	52mW	"				3.9	F6IV							
	HR856	02 51.8	+16 23		0517	0620	2m 40s / 40m	58mW	"				6.8	F5III							
1261	ε Cet	04 59.8	+43 47'	"	0722	0726	4m ✓	6mE	3" / "	"	"	"	3.5	F0p	"	"	"	"	"	"	
	ζ Aur	05 00.4	+41 02		0730	0750	20m ✓	18mW					5.0	K5II+B							
	η Aur	05 04.4	+41 12		0753	0756	2m / 2m 5s	20mW					3.0	B3V							
	α Aur	05 14.5	+45 58		0758	0759	12s / 20s	13mW					0.85	G8+F							
	π Aur	05 57.7	+45 56		0805	0845	40m / 1-80m	16mW					5.97	M3.5							
	15 S Mon	06 39.6	+09 55		0849	0904	2,4,8 / 4m	8mE	1.5				4.4	O7V							
	η CMa	07 23.1	P29 15		0906	0913	15,30,60s / 30s	41mE					2.4	B5Ia							
1262	ζ Aql	20 36.8	−01 13	24/25	2349	2354	5m / 7m	48mW	1" clear	"	"	"	5.2	G8	"	"	"	"	"	"	
	ε Aqr	20 46.1	−09 36	Oct	2357	2359	1.5 / ✓	44mW	"				3.8	A1							
	3 Aqr	20 46 2	−05 08	1976	0002	0030	2.5m / ✓	1h15mW	"				6.6:	M3							
	β Aqr	21 30.0	−05 42		0033	0035	1.5m / ✓	36mW	"				3 7	G0Ib							
	π Peg	22 08.7	+33 02		0041	0047	6m ✓	9mW	2"				4.7	F5							
	1 H LAc	22 12 6	+39 34		0049	0126	37m ✓	46mW	1.5				5.8	K3							
	1 LAc	22 14.7	+37° 36'		0129	0202	33m ✓	1h18mW	"				5.6	K3							
	η Peg	22 41.6	+30 04		0204	0207	3m ✓	56mW	1"-1.5				3.8	G8+F:							
	ξ Peg	22 05.6	+25 12		0210	0213	3m 5m	1h39mW	1" / "				4 2	F5							
	λ Peg	22 45.1	+23 24		0215	0222	6m 7m	1h8mW					5.0	G8							
	μ Peg	22 48.6	+24 27		0223	0227	3.5m 4m	1h11mW					4 4	G8							
	θ Aqr	22 15.3	−7 56		0230	0235	45s ✓	~~1h52mW~~ 40mW					5.2	G8							
	ζ Aqr AB	22 27.3	−0° 10'		0237	0240	3m ✓	1h45mW													

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / COPR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1263	ζ Aqr	22 27.2	−0° 10′	24/25 Oct 1976	0254	0258	4m ✓		1.5 / clear	2.87	50μ / 1.2	63° / 4.45	4.8	F2	NeAr	60s	NONE	M-67	Ilford HP3	S.J.	N focused, Gain set poor. S focused
	ζ Aqr	"	"		0258	0302	4m /	2h 9m W					4.8	F2				Ilford FC			S focused
	φ And	01 01.8	+47° 05′		0326	0336	10m (16m) /	0	2"				4.2	B7				GF°F 5mm			one half overlap? star bad again
	ν And	01 33.0	+41 15		0338	0348	10m ✓	15m E					4.6	F8							
	51 And	01 36.1	+48 29		0351	0412	21m / 40	8m W					4.8	K3							
	υ Per	01 39.9	+5 20		0415	0437	22m ✓	28m W					5.8	K3							
	χ¹ And	02 02.1	+42 11		0441	0445	4m ✓	15m W					3.3	K3							
	χ² And	02 02.1	+42 11		0446	0457	11m /	26m W					5.1	A0							
	b Per	02 42.1	+49 06		0500	0508	8m / 10	2m E	"				4.6	F7							
	L Per	03 06.8	+49 30		0512	0523	11m / 35	12m E	"				4.6	G0							
	κ Per	03 07.5	+44 45		0526	0536	20m ✓	10m W					4.8	K0							
	α Per	03 22.2	+49 45		0539	0551	3m /	2m W					2.3	F5Ib							
1264	48 Per	04 06.5	+47 38	"	0643	0651	8m /	16m W	2-3"	"	"	"	4.00	B3e	"	"	"	"	"	"	
	μ Per	04 12.7	+48 30		0654	0718	24m /	32m W					5.1	G0Ib							
	b Per	04 14.0	+50 13		1721	1743	22m / 30	1m W					4.6	A2							
	58 Per	04 34.6	+41 12		1725	1826	25m /	1h 25m W					5.4	G8							
	ε¹ Cma	07 01.0	−28 58		0845	0855	3m 40s 10	35m E					2.9	B3Ia							Wind T=11°C Calm. H=47%
	γ Cnc	08 23.8	+6° 20′		0858	0901	6m 22s	1h 18m W					1.4	B2III							
1265	α Aqr	22 04.7	−0 25	25/26 Oct 1976	2355	2358	2m 25s /	32m E	1.5 / clear	2.87			5.9	G2Ib							Calig T=11°C H=60%
	α Equ	21 14.3	+5 07		0000	0007	4m /	26m W					4.5	F8+A3							
	ε Cyg	20 45.0	+33 51		0009	0013	3.5 /	1h 3m W	2"				3.5	K0							
	ζ Cyg	21 11.7	+30 06		0015	0019	4m /	42m W					4.2	G8							
	τ Cyg	21 13.6	+37° 55′		0022	0027	5m /	48m W					4.1	F0							
	ι Peg	21 20.2	+19 41		0029	0042	12m /	56m W					5.2	K1							
	9 Peg	21 43.1	+17 13		0047	0104	17m /	57m W					5.5	G5							
	δ Equ	21 13.0	+9 53		0106	0116	10m /	1h 38m W					5.0	F7							
	ε Peg	21 43.3	+21		0120	0132	13m 9	1h 23m W					4.5	F5							
	o And	23 00.5	+42 10		0135	0140	5m /	15m W	3"				3.5	B6p							
	7 And	23 11.2	+49 15		0143	0204	21m 30	29m W					4.8	F0							
	ν And	23 26.1	+46 18		0206	0229	23m 30	23m W					4.9	G5							
	L And	23 26.9	+43 04		0231	0242	10m 9	40m W					4.1	G8							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

T = 9.5C wind 10↑
H = 55%

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1266	ψ Peg	23 56.2	+24 58	25/26	0310	0340	30m /	1h 19m W	1.5 / clear	2.87	50µ / 1.2	67 / 4.45	6.3	M3 III	NeA	60s	NONE	IIa-O	Metol Sulfite 67°F 15%	✓	
	δ Cap	21 45.4	-16 16	Oct.	0343	0346	2.5 / ✓	3h 36m W	2.4 / "				3.2	A6m							
	ι PsA	21 43.2	-33 10	1976	0350	0353	3m+ / 4	3h 46m W					4.3	A0							
	o Cet	02 18.4	-3 11		0406	0626	2h 20m / wt	1h 46m W	2-3 / cloudy				~9:	M8e+B							clouds coming in.
	β Ori	05 13.3	-8 14		0634	0636	2,4,8 / int	1h 1m E	2-3 / cloudy				0.1	B8 Ia							thin clouds
	υ Ori	5 30.7	-7 20		0653	0725	4,8,16 / 8m	30m E	2 / cloudy				4.4	B0 V							passing 4.9 Fum clouds, cleared out
1267	χ Lep	5 31.6	-17 51		0810	0821	1.5, 3.6 / 1m	26m W	2-3 / clouds				3.2	F0 Ib					9°C 50% 20mph		
1268	χ Peg	0 13.3	+20 04	26/27	0335	0500	1h 2m /	1h 27m W	1.5 / few clouds	"	"	"	6.4	M2+ III	std.	"	"	"	"	"	clouds until midnight
	45 Rz Ari	2 54.4	+18 14	Oct	0523	0607	1h 4m /	54m W	1" / clear				~7.5	M6 III							
	Jupiter IV	3 47.2	+18 43	1976	0616	0722	46m /	56m W	"				6.1	G2 V							
	R Dor	4 36.5	-62 07		0726	0804	58m /	1h 9m W	1.5 / clear				7:	M8e							
	HR 1016	3 20.3	-23 43		0810	0839	29m /	3h W	"				6.4	G7 IIb							
	56 Ori	5 51.1	+01 51		0842	0902	20m /	52m W	1" / clear				6.2	K1.5 IIb							
	τ Cma	7 17.7	-24 54		0904	0914	6,3,1.5 / 2.5	22m E	1.5 / "				4.3	O9 Ib							
1269	χ Oph	17 33.5	+12 35	27/28	2345	2348	3m / 1.5	4h W	3" / few cirrus	"	"	"	2.2	A5 III	"	"	"	"	"	✓	
	ζ Aql	19 04.0	+13 49	Oct	2354	2357	3m / 2m	2h 38m W	"				3.0	A0:							
	α Sge	19 38.8	+17 57	1976	0003	0016	13m / ✓	2h 20m W	2" / "				5.1	G0							
	γ Aql	19 44.8	+10 32		0038	0050	12m / 9m	2h 50m W	"				4.1	K3							
	δ Sge	19 46.0	+18 28		0053	0124	31m / ✓	3h 22m W	"				5.5	M2+B							
	β Sge	19 57.4	+19 25		0126	0159	33m /	3h 45m W	"				4.8	K5 III					10°C 40%H 20 wind.		
	~~δ Del~~	~~20 42.1~~	~~+14 58~~		0202	0212	14m	3h 11m W	"				~~4.6~~	~~A~~							~~clouds in RA.~~
	8² Del Mb	20 45.3	+16 01		0202	0212	16m / ✓	3h 11m W	1.5 / clear				5.3	K1							doubt on RA by?
	δ Del	20 42.1	+14 58		0216	0226	10m /	3h 29m W	"				4.6	Am							
	α And	00 06.8	+28 55		0229	0231	45s /	8m W	"				2.0	B9							
	ζ And	0 45.7	+24 06		0233	0248	15m /	14m E	1.5 / cirrus↑				6.4	K1 II							last pair min cloudy.
	β Ari	01 53.0	+20 40		0250	0252	1.5 / ✓		" / cirrus				2.8	A5 V							
	β Tri	02 07.8	+34 51		0256	0259	3m /	1h 24m E	"				3.1	A5 III							
1270	"	"	"	"	0403	0405	2m / 1.5	18m E	2" / cirrus	"	"	"	"	"	"	"	"	"	"	"	
	β Ari	01 53.0	+20 40		0408	0409	1m / ✓	0	"				2.8	A5 V							
	17 Cet	~~01 49.7~~ 02 13.1	+34 56		0413	0414	/ ✓						6.1	K7 III							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 146
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1270	σ Per	02 42.1	+49 06	27/28	0449	0510	21m /	13m W	1.5/clear	2.87	50μ/1.2	67/445	4.6	F7	N2A	60s	NONE	IIa-O	Metal	Nd	
(CONT)	16 Per	02 48.7	+38 12	OCT.	0526	0536	9m /	32m W	"/cirrus												
				1976									4.6	F2					Schott GG495 15mm		
	11 Per	02 56.8	+39 33		0539	0550	10m /	36m W	"/"				4.6	A2							
	β Per	03 06.2	+40 50		0553	0555	1m /	33m W	"				2.0	A8							
	34 Per	03 27.2	+49 24		0557	0622	23m /	39m W	2"/cirrus				4.6	B5							thin clouds
	υ² Eri (2)	4 34.4	−30 37		0628	0640	12m /	10m E	"				4.8	K0							
	"	"	"		0641	0650	9m /	0	"				"	"							
	3 Dor	5 33.4	−62 31		0655	0701	6m /	46m E	"				4.20	F8							
	ι Col	5 38.6	−34 05		0704	0706	1.2m /	49m E	"				2.5	B8							
1271	2 Mon	5 57.9	−09 34	"	0723	0733	10m /		"	"	"	"	5.3	4m ~~F2 IV~~	"	"	"	"	"	"	~1 mag. cirrus
	1 Mon	5 57.9	−09 22		0734	0800	26m /	12m E	1.5 cirrus				6.7	F2 IV							
	HR 1909	5 34.4	−33 06		0803	0833	30m /	44m W	1.5 "				6.9	K2 IIIa							
	HR 2764	7 15.6	−23 16		0838	0906	28m /	24m E	1.5 "				6.6	K3 I6							
1272	α Cph (2)	17 33.5	+12 35	28/29	2350	2355	1.5m / 1m	4h 10m W	3"/cirrus	"	"	"	2.25	A5 III	"	"	"	"	"	"	fog, cirrus, high wind
	δ Oph	17 25.0	+4 10	Oct 1976	0000	0029	29m / +60s	4h 52m W	2"/cirrus				5.8	K2 II					11E 40% 20 mph		
	68 Oph	18 00.2	+1 18		0031	0045	14m / 8m	4h 33m W	"				4.5	A1							
	70 Oph A	18 03.9	+2 30		0046	0106	20m /	4h 50m W	"				4.9	K0							
	ε¹ Ser	18 54.7	+4 10		0119	0129	10m /	4h 24m W	"				4.7	A5							
	ε² Ser	18 54.8	+4 10		0130	0150	20m /	4h 14m W	"				5.2	A5							
	δ Aql	19 24.0	+3 05		0152	0155	3m /	4 19 W	"				3.7	F0							
	ν Aql	19 25.0	+0 16		0156	0211	15m /	4 35 W	"				5.2	F2 I6							
	α Aql	19 49.3	+8 47		0214	0216	20s /	4 15 W	"				1.0	A7							
	γ Aql	19 50.9	+0° 56		0219	0228	4m /	4 25 W	"				4.3	F6							
	β Aql	19 53.8	+6° 20′		0230	0241	11m /	4 36 W	"				4.6	G8							
1273	ε Del	20 31.8	+11° 12′	"	0248	0253	4.5m /	4 10 W	"	"	"	"	3.8	B6	"	"	"	"	"	"	
	ζ Aqr	22 27.3	−0 10		0259		5m /						4.3	F2							N flavored S flavored, but not sure
	ζ Aqr	"				0309	5m /	2h 31m W	3"/clear				4.7	"							
	α And	00 08.8	+28 55		0313	0314	1m /	56m W	"				2.0	B9							
	ζ Per	03 28.5	+47 54		0515	0557	42m /	15m W	3"/cirrus				5.7	K3							
	γ Per	03 34.3	+48 06		0559	0611	12m /	26m W	"				4.1	B5							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 147
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1273 (CONT)	δ Per	03 40.8	+47 42	28/29 Oct 1976	0616	0620	4m	28m W	2"-3" clear	2.87	50µ / 1.2	E7 / 445	2.9	B5 III	Neft	60s	NONE	IIa-O	Metol Sulfite 67°F 15min		
	ν Per	03 43.1	+42 29		0622	0634	12m ✓	40m W	"				4.2	F5 II							
	μ Per	04 12.7	+48 20		0637	0714	37m ✓	50m W	"				5.1	G0 Ib							
	i Aur	0504.4	+41 12		0718	0722	4m 3m	7m W	"				3.0	B3 V							
	2 Aur	05 14.5	+45 58		0726	0729	30s ✓	3m W	3"-4"				0.85	G8+F							
	γ Lep	05 43.2	-22 27		0733	0736	2.5m ✓	17m E	2"				4.1	F6					75°C 45% 15 mph		
1274	HR2281	06 18.2	-50 21	"	0802	0900	58m 70m	32m W	1.5"	"	"	"	7.9	G2 Ib	"	"	"	"	"	"	
	α Lep	05 31.6	-17 50		0903	0904	50s ✓		2"				3.2	F0 Ib							
	ν Per	00 11.9	+15 03	29/30	0410	0415	40,8=120s 70s	1h56m W	2"-3" clear				2.6	B2 IV				8°C, 50, ..strength.			
	ψ³ Per	01 08.5	+9 31		0419	0449	30s 35m	1h34m W	"				6.2	G0 III							
	α Tri	01 51.7	+29 28		0452	0456	4m ✓	58m W	"				3.9	F6 IV							
	HR856	02 51.8	+16 23		0459	0541	42m 3m ✓	42m W	" cirrus				6.8	F5 III				7°C			
	ζ Per (2)	03 52.6	+31 49		0543	0550	1.5 3m 2m	9m E	2" clear				2.7	B1 Ib							
	48 Tau (4)	04 43.7	+21 46		0553	0624	10, 20 20m	35m W	1"				5.6	B8 V				5°C 30+ mph			
1275	57 Tau	04 18.5	+13 58		0659	0723	23m ✓ 65m 30m	58m W	2" clear				5.9	F0 IV				8°C "			
	HD27524	04 20.0	+20 59		0726	0831	2h5m W		2" clear				7.2	F5 V				6°C "			
	χ Ori (2)	05 23.8	+6 20		0833	0837	24, 48 5 24	1h7m W	"				1.4	B2 III							
	β Ori (3)	0513.3	-8 14		0840	0842	5, 10, 20 5m 10	1h23m W	2" "				0.1	B8 Ia							
	42 Ori (3)	05 34.2	-4 51		0847	0902	2, 4, 8m 4	1h21m W	"				4.4	B1 V							
	σ Ori	05 37.5	-2°37'		0905	0910	3.5, 17.5 2m	1h23m W	"				3.5	O9.5 V							
1276	72 Oph	18 05.9	+9 34	30/31 Oct 1976	2347	2351	4.5m ✓	3h40m W	2" cirrus	"	"	"	3.8	A4	"	"	"	7°C 60% 5 mph	"		
	71 Oph	18 05.9	+8 44		2354	0031	37m ✓	4h19m W	" clear				5.7	G8 III							
	β Sgr	19 39.7	+17 24		0033	0104	31m 28	3 18 W	2" clear				5.3	G9 IIIa CN2							
	μ Aql	19 32.6	+7 19		0106	0128	22m ✓	3h49m W	1.5" clear				5.6	K3 IIIb							
	η Ser	18 19.8	-2 54		0131	0143	12m 15	5h18m W					4.2	K0 III IV							Stopped by hunger if hope can mean!
	β Set	18 45.6	-4 47		0146	0210	24m 28	5h19m W	1.5" clear				5.3	G4 II CN1							
	ζ Aql	19 35.2	-1 21		0212	0223	10m 8	4 46m W					4.3	B5 III							
	α And	0 04.8	+28 55		0226	0227	45s 40s	14m W	2				2.0	B9							
	ο Sgr	19 02.9	-21 47		0231	0239	5m 10	5h31m W	2"				4.8	G8							
	τ Sgr	19 05.1	-27 43		0242	0250	5m 10	5h40m W					4.5	K1							

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1276	52 Sgr	19 34.9	-24 57	30/31	0253	0302	9m / 8	5h 21m W	2"/clear	2.87	50µ/1.2	67/485	4.5	B9	NeA	60s	NONE	IIa-0	Metol Sulfite 67°F 15 min	N-1	3°C sc 5/8 Smph
(Cont)	59 Sgr	19 55.1	-27 15	Oct	0304	0324	20m / 30	5 23m W					6.0	K3							
	62 Sgr	20 00.8	-27 48	1976	0326	0352	26m / 33	5h 46m W					6.1	M4							
1277	θ Sgr	19 57.8	-35° 22'	"	0401	0408	7m 8m	6h 3m W	3"/clear			"	4.2	B3	"	"	"	"	"	"	
	α Pav	20 23.3	-56 50		0411	0415	2m 1m 45s	5 46 W					1.75	B3							
	α Ind	20 35.5	-47 27		0417	0423	6m /	5 42 W					4.1	K0							
	β Pav	03 06.2	+40 50		0510	0512	50s /	0					2.0	B8							
	54 Per	03 27.2	+49 24		0518	0540	22m /	8m W					4.6	B5							
	ι Per	04 16.0	+50 13		0542	0612	30m /	9m E					4.6	A2							
	α Col	05 38.6	-34 05		0616	0617	50s /	1h 26m E					2.5	B8							
	HD27836	04 22.8	+14 43		0623	0853	150m /	2h 23m W	1.5 / clear				8.2	G1 V std.							
	α CMa	06 43.8	-16 40		0856	0905	3.6m / 3	16m W	"				-1.4	A1 V							w/5m filter
	σ Pup	07 46.8	-25 52		0908		/						4.4	B0							
1278	39 Cyg	20 22.7	+32 06	31 Oct	2340	0006	26m /	1h 42m W	1.5				5.8	K3 III							1°C 40% Smph
	μ¹ Cyg A	21 42.8	+28 36	Nov. 1976	0009	0016	7m /	31m W					5.0	F6							
	σ Sco	16 19.1	-24 06		0020	0030	15m W	6h 9m W					5.4	A5 II							terminated by hand scan
	22 Sco	16 28.7	-25 04		0033	0043	10m W	6h 12m W					4.7	B2 V							"
	1 Lac	22 39.2	+44 07		0046	0116	30m /	35m W					5.8	K3							
	α Sct	18 33.6	-8 16		0120	0144	24m /	5h 8m W					5.2	K3							
	δ Sct	18 40.6	-9 05		0146	0200	14m /	5 18 W					5.1	F3							
	12 Cyl	19 00.1	-5 47		0201	0224	23m /	5 22 W					5.1	K1							
	K Pav	18 53.9	-67 16		0227	0233	6m /	5h 38m W					4.5	F5							
1279	HR683	02 17.9	-26 04	"	0453	0518	3m 46s 10m	59m W	1"/clear	3.42	100µ/1.8	112/7.0	7.1	G5	NeA	60s	NONE	IIa-0	MWP-2 7 min 67°F	N-1	
	~~EE~~ K FOR	02 21.4	-23 55		0520	0529	1m 1.5 2m 2.5 3m 4.5	1h 7m W	"				5.8	G1							
	77 Cet	02 33.5	-7° 59'		0531	0543	1m 1.5 2m 3m 4.5 5m	1h 9m W					4.15	K4							
	λ² FOR	02 35.9	-34 40		0546	0602	2m 3m 4.5 6m 9m	1h 24m W					6.5	G1							
	ε FOR	03 41.3	-32 00		0604	0608	20s 40s 60s 90s 40	29m W					4.8	B5							
280	HD27808	04 22.7	+21 41	"	0636	0807	1h 31m /	1h 44m W	3/4"/clear	2.87	50µ/1.2	~~66~~ 67/485	7.7	F8 V std.	"	"	"	"	initial Sulfite 67°F 15 min	"	seeing perfect! 12°C 40% 5 mph
	HD46150	06 30.6	+04 57		0811	0901	20m 20m /	30m W	"				6.9	O5 V							
	"	"	"		0908	0914	6m / 4m	45m W	"	3.42	100µ/1.8	112/7.0	"	"							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

12°C 55% calm to 5 mph

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1281	HR7495	19 40.1	+45 28	1/2	0008	0017	1,2,4m	2h39m W	1".5 clear	3.42	100μ/.8	112/70	5.5	F3II	NeA	10s	NONE	II=-0	MWP-2 7 min 67°F		
1	10 LAc	22 38.2	+38 55	Nov	0022	0028	10s,20s,40s,60s 1m,2m,4m,6m	6m E	" "				4.7	09V							but two - extinction dust 3 - guide
	61 Cyg A	21 05.8	+38 37	1976	0034	0049	2,4,8m	1h46m W					6.4	K5V							
	61 Cyg B	"	"		0050	0129	5,10,20,30,48m	2h25m W	1-3" poor clear				7.4	K7V							slide closed?
	12 Peg	21 45.0	+22 50		0132	0148	2,4,8m ✓	2h5m W	"				5.7	K0I6							pic advance?
	EN DEL	20 36.8	+18 11		0152	0212	10m /	3h37m W	1".5 "				8.0:	M6III							about—drive problems
	207076	21 45.1	−02 19		0215	0247	32m 25m		"				8.6+	M7III							
1282	ψ³ Peg	61 08.5	+19 31		0252	0332	2m,1m,2m,4m	27m W	1-2 mm				6.2	G0III							
	X Peg	00 13.3	+20 04		0335	0351	1m,2m,4m,8m	1h40m W					6.4	M2+III							
	HR856	02 51.8	+16 23		0354	0408	2m,4m,8m,16m	40m E	1".5 1-2 mm				6.8	F5III							5°C 50% 10 mph.
	45 Eri	02 54.4	+18 14		0411	0448	4m,10m,20m	4m E	1-2 mm				7.5	M6III							
	o Cet	02 18.1	−03 06		0454	0624	90m 10m ✓	2h9m W	2"				10:	M8+IIIe							
	R Dor	04 36.5	−62 07		0650	0712	3,6,12m 8m	38m W	3"-2"				7:	M8e							
	θ Dor	05 13.7	−67 13		0717	0732	2,4,8m 4m	21m W	3"				6.1	K2.5III							
1283	p Eri	05 29.0	+41 47	"	0743	0748	1m,2m 2m	32m W	"	"	"	"	4.9	B5V	"	"	"	"	"	"	
	1 Mon	05 57.9	−09 22		0754	0801	1,2,4m	6m W	2"				6.3	F2IV							
	HR2281	06 18.2	−50 21		0805	0841	5,10,20m 15m	25m W	3"				7.9	G2Vb							
	HD46223	06 31.0	+04 50		0845	0906	3,6,12m 12m	39m W	3"				7.5	O4							
1284	HR1016	03 20.3	−23 43	2/3	0439	0455	2,4,8m ✓	19m E	3-4"	"	"	"	6.4	G7IIIb	"	"	"	"	" 68°F 75% temp		cirrus, fog first half, cirrus, 10% high wisps
	18 Tau	03 43.7	+24 46	Nov	0600	0612	4m,2m,4m	35m W	4-6"				5.6	B8V							
	HR1286	04 09.4	+33 31	1976	0616	0652	5,10,20m	50m W	6-8" clear				6.9:	K1III-IV					46°F 7% high temp		
	HR1279	04 06.3	+15 06		0712	0726	2,4,8m	1h27m W	6" some hzy				6.4	F3V							
	HD27383	04 18.6	+16 29		0729	0807	5,10,20m	1h55m W	6"				7.4	F9V					3°C 10% temp		
	HD27524	04 20.0	+20 59		0810	0847	6,9,16m	2h36m W	6" cirrus.				7.2	F5V							skipped by comm & low pot and 2
1285	HR7495	19 40.1	+45 28	4/5	2357	0012	2,4,11m 25m	2h45m W	6" clear	"	"	"	5.5	F5II					10°C 57% 15 mph.		
	61 Cyg B	21 05.8	+38 37	Nov	0015	0047	32m 5,10m	1h54m W	3" "				7.4	K7V							
	31 Aql	19 23.8	+11 54	1976	0050	0108	2.5,5,10m 4m	2h58m W	3"				6.0	G8IV							
	β Aql	19 53.8	+6 20		0111	0122	30s,1,2,4m 1m	3h4m W	3"				4.6	G8IV							earthquake
	181475	19 19.5	−04 33		0125	0205	40m 80m	5m W	3"				9.0:	M0II							
	Eu Del	20 36.8	+18 11		0211	0242	3m ✓	4h14m W	3" clear				8:	M6							

NUMBER LC	OBJECT	R.A.	DEC.	DATE UT	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS	REMARKS
1285	HD26	00h 04.1	+08° 38	4/5	0326	0525	5 37 22 / ✓	2h 35W	2" / clear	3.42 / 3.37	107 / 6.8	112 / 7.0	9.3	G5p	NeA	10s	none	IIa-O	Ha+2	no?	10% 49% 41%
(cont)	Sky	"	"	Nov	0525	0610	45m / K	4h 20m W	hazy				?	G2 V					GG F 7mm		avoid Cam
	57 Tau	04 18.5	+13 38	1976	0614	0621	1 46 16 / ✓	15m W	1.5 clear				5.9	F0 IV							
1286	HD27836	04 22.7	+21 41		0636	0659	24 16 / ✓	50m W	"				7.7	F8 V							
3	HD27836	04 22.8	+14 43		0701	0747	6 15 25 / ✓	1h 9m W	1" clear				8.2	G1 V							
12	HR1105	05 34.4	-33 06		0751	0808	2 48 / ✓	48m W	"				6.9	K2 IIIa							
14	56 ORI	05 51.1	+01 51		0811	0819	1 12 4 / ✓	42m W	"				6.2	K1.5 I b							
4	41 Tau	04 58.7	+16 07		0822	0843	5 6 12 / ✓	1m E	"				7.	K3 I b							
	145 Ori	07 15.6	-23 16		0836	0900	2 48 / ✓	C	"				6.6	K3 I b							
	145 Ori B	"	"		0901	0919	5 2 51 / ✓	9m W	"				6.5	F0							
1287	HR7495	19 40.1	+45 28	5/6	2352	0014	22m / ✓	2h 51m W	" / clear	"	"	"	5.5	F5 II	"	"	"	"	"	"	13% 40% Cam slow, hazy, done at end
5	HD181475	19 19.5	+01 33	Nov	0020	0120	60m / ✓	4 18W	"				9.	M0 II							
7	HD184313	19 32.6	+05 25	1976	0123	0220	2 17 5 / ✓	5h 5m W	"				8.5:	M5 III							
	μ Cand	00 55.5	+38 22		0225	0228	4 13 2m 48 / ✓	9m E	"				3.8	A2							
	α Hyi	1 58.0	-61 41		0344	0345	2 48 3 10 5 / ✓	6m W					2.0	F0							
N	HD5780	0 58.2	+0 39		0351	0535	60 30 / ✓	2h 56W	"				9.	K0 weak metals?							(faint —)
23	ν Tuc	2 03.5	-29 24		0538	0541	13 27 45 / ✓	1h 36m W					4.5	A0p							
21	ζ Tau	3 10.3	+19 38		0545	0550	30 / ✓	38m W					> 3	K0							
1288	38 Tau	3 18.9	+28 58	"	0556	0605	10 / ✓	1h 4m W	"	"	"	"	6.0	K5	"	"	"	"	"	"	11% 40% Cam
	b Per	4 16.5	+50 14		0609	0617	30 / ✓	28m W					4.5	A2							
9	5 Tau	3 29.6	+12 51		0621	0625	/ ✓	1h 14m W					5.3:	K0							
11	ε Tau	4 18.5	+15 34		0650	0655	15 30 / ✓	55m W					4.6	K0							
13	ζ Tau	4 21.4	+17 29		0656	0659	" / ✓	56m W					4.7	K0							
	68 Tau	4 24.1	+17 53		0701	0703	15 30 9 / ✓	58m W					4.2	A2							
1289	71 Tau				0711	0713	15 30 / ✓	1h 7m W					4.7	A5							
	e1 71 Tau				0715	0718	" / ✓	1h 10m W					4.8	K0							
	e2 Tau				0720	0722	5 10 20 / ✓	1h 14 W					3.6	F0							
	ε Tau				0724	0726	15 30 / ✓	1h 18 W					4.6	K0							
	f Tau				0729	0731	" / ✓	1h 17 W					4.9	A5							
	85 Tau				0733	0735	10 20 45 / ✓						4.4	A3							

13°C 14% calm.

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1289	90 Tau	4 36.9	+12 28	5/6	0738	0741	10,20,40s		1" clear	3.72 ~~2.87~~	100μ/1.8	112/7.0	4.4	A3	NeAr	10^5	None	IIa-O	MWP-2		
(cont)	HD46407	06 31.6	-11 09	Nov	0744	0818	4,8,16m	1h W					7.4	K0					7 min 67°F		
	HR 2591	06 53.7	-42 20	5/6	0818	0908	40m+10m+80	35m W	"				8:	C5,2.5							
1290	θ R Sct 2	18 45.9	-5 44	6/7	2357	0008	3,7m	3h46m W	2" clear	"	"	"	6.1	G0Ia	"	"	"	"	"	"	
6	HR 7160 (3)	18 58.0	-18 36	Nov	0014	0037	3.5,6,E10	4h2m W	"				7.0	G3II							
9	HD165782 (1)	18 07.0	-18 33	1976	0043	0110	27m 3h	5h26m W	"				~~7~~ 9 ~~4~~ 0	G8Ia							
11	23 Vul (3)	20 14.8	+27 44		0113	0137	13,6,3m	3h45m W	"				6.1	K5							
14	λ Cyg (3)	19 05.0	+4 55		0140	0142	18,36,72s	5h W	"				3.3	B9							
17	μ Cyg (3)	19 33.0	+27 20		0145	0156	1,2,5s	4h46m W	"				4.6	K0							
20	θ Cyg (3)	20 10.1	-0 53		0159	0201	18,72,36s 18	413 W					3.2	A0							
23	ι And	23 37.0	+43 08		0205	0210	40,80,160s 40	57m W	"				4.2	B8							
24	κ And	23 39.3	+44 12		0213	0219	" 40	1h3m W					4.1	A0							
	HD221170	23 28.4	+30 18		0222	0322	~~60~~,20m	2h18m W					8.8	K0	CN-4 Fe-3						full moon
1291	δ Cap	21 45.8	-16 14	"	0329	0331	4,8,16,16s	4h8m W	"	"	"	"	2.6	A5	"	"	"	"	"	"	
	~~α~~ Gru	22 06.8	-47 04		0334	0335	1,2,4,8s 2m	3h51m W					1.6	B5							
	55 Peg	23 05.8	+09 17		0339	0411	2,8,4,16s 3m	2h28m W					6.1	M0							
	HR 7913	20 42.9	-66 17		0414	0416	6,12,24s 24m	5h56m W					3.3	A5							β Pav.
18	υ Peg	23 24.2	+23 17		0421	0427	1,2,4m	3h27m W					5.0	G0							
21	ν Peg	23 56.6	+25 00		0431	0500	4,8,16m 64	3h26m W					6.3	M0							
24	HD217987	23 4.2	-36 02		0508	0550	42m	5h10m W					8.8	M2V							full moon CD-36° 15693 full moon
26	HD19445	03 7.0	+26 17		0556	0647	39,16m 27	2h06m W	2"				8.5	Gp?							
	119 Tau	05 30.7	+18 34		0653	0708	39,15s	2m W					6.0	M2I							
1292	7 Ori	04 53.6	+10 07		0713	0716	18,36,72s	45m W	2"				4.7	A0							
	9 Ori	04 55.1	+13 29		0719	0725	1,2,4m 1m	54m W	"				5.3	K0							
	110 Ori	05 03.2	+15 22		0728	0730	18,36,72s	51m W					4.6	B9							
	η Aur	05 04.9	+41 12		0733	0736	9,18,36s	54m W	"				3.0	B3							
	π Ori (5)	05 16.5	-6 52		0739	0740	6,12,24,48,96s 1m 25	47m W	"				3.5	B5							
21	250 Ori	05 23.5	+1 50		0743	0746	18,36,72s 2m	48m W					4.7	B3							
24	ν Aur	5 49.9	+39 09		0750	0757	1,2,4m	32m W					5.2	K0							
27	π Aur	5 58.2	+45 56		0801	0824	3,6,12s	50m W	"				6.0	M3							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1293	γ Gem	6 36.4	+16° 25'	6/7	0830	0833	1,2,4,8,16	21m W	2" clear	3.42	100μ/.8	112/7.0	1.9	A0	NeA	10s	None II a-0		MWP2		
	θ CMa	6 53.1	-12 00	Nov	0835	0842	1,2,4m	16m W	"				5.5	K0					67°F		
	HD52220	06 58.1	-32° 41'	1976	0844	0900	15m	26m W	"				8.	G1Ib					7 mm		
1294	G1 Cyg A	21 05.8	+38 37	7/8	2352	0033	41m	1h 45m W	2" clear	2.87	50μ/1.2	67/4.45	6.4	K5V	"	60s	"	"	metal	"	15°C, 43% 20-30mph
	R Sct	18 45.9	-5 44	Nov	0037	0127	50m	5h 0 W	"				6.1	G0Iae					Sulfate		
	ι Aql	19 35.2	-1 21	1976	0129	0133	4m	4h 18 W					4.3	B5III					67°F 15min		
	γ Aql	19 44.8	+10 32		0137	0147	10m	4h 22 W	3" clear				4.2	K3							
	α Aql(3)	19 49.3	+8 47		0150	0153	30,1,2m	4h 23 W					1.0	A7							
	η Aql	19 50.9	+0 56		0155	0208	12m	4h 37 W	3"				4.3	F6Ib							
	ν Cyg	21 16.7	+34 46		0213	0225	12m	3h 28 W	"				4.3	B2e							wind screen in way-very low
	K Peg	21 43.3	+25 30		0227	0[illegible]7	10m	3h 13 W					4.5	F5IV							
	L Peg	22 05.6	+25 12		0239	0247	8m	3h 1 W					4.2	F5V							
	μ Peg	22 48.6	+24 27		0250	0258	8m	2h 30 W					4.4	G8III							
	α Pav	20 23.8	-56 50		0303	0305	20s (10m)	5h 2m W	1.5 clear				1.75	B3							
1295	HD 5780	00 58.2	+00 39	"	0318	0617	3h	3h 39m W	1.5	"	"	"	9.	K0	"	"	"	"	"	"	
	HR 1286	4 09.4	+33° 31'		0621	0651	30m	1h 2m W	"				7:	[illegible]							
	ρ LMR	5 20.0	+41 47		0657	0710	12m	10m W					4.9	B5V							
	θ Dor	5 13.7	-67 13		0714	0745	31m	51m W	2"				6.1	K2.5III							
	HD 46407	6 31.6	-11 09		0748	0828	40m	16m W					7.4	K0III B.3							
	η Lep	5 55.0	-14 10		0831	0832	2m	1h W					4.0	F0V							
	ν² CMa	6 35.4	-19 14		0834	0843	8m	20m W					5.0	K1IV							
	θ CMa	6 52.8	-12 00		0845	0901	15m	28m W					5.5	K4III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1296	λ Aqr	22 50.4	-07 47	9/10 1976	0143	0151	10s, 20s, 30s / 0s	1h 19m W					3.7	M2 5IIIe							
	S Scl	00 14.2	-32 28		0210	0416	2h / 2h 17½	2h 30m W													Cirrus
	R Ret	04 33.4	-63 11		0438		3h / 3h	40m W													clears
1297	3 Aqr	20 45.5	-05 13	10/11	0024	0033	25s, 40s	2h 14m W					4.4	M3 III							
	2 Peg	21 27.7	+23 25		0039	0046	25s, 40	2h W					4.7	M1 III							
	λ Aqr	22 50.4	-07 47		0104	0104	7s	36m W					3.7	M2.5IIIa							
1298	γ Peg	00 12.5	+20 12		0407	0409	20s, 40s	2h 30m W					4.8	M2 III							
	45 Ari	02 53.4	+18 10		0419	0421	30s, 60s	1m E					5.9	M6 III							
	R Ret	04 33.4	-63 11		0430	0721	2h 40m / 7h 15m 22s	1h 10m W													
1299	γ Eri	03 55.7	-13 57		0737	0744	7h 15m 22s	2h 10m W					3.19	M1 III							
	α Cet	03 00.1	+03 54		0750	0752	3s, 9s	3h 25m W					2.5	M2 III							
1300	3 Aqr	20 45.1	-05 13	11/12	0006	0012	25s, 45s	1h W					4.4	M3 III							
	2 Peg	21 27.7	+23 25		0018	0026	30, 56	1h 42m W					4.7	M1 III							
	T Tuc	22 39.0	-61 56		0131	0236	1h	2h 32m W													
1301	φ Aqr	23 12.3	-06 15		0356	0407	25s, 45s	3h 43m W					4.2	M1.5 III							Clouds
	30 Psc	23 59.9	-06 14		0414	0422	20, 40	2h 59m W					4.4	M3 III							
	R Oct	05 22.1	-88 20		0439	0618	1h 30	13m W													
1302	S Vol	07 30.9	-72 50		0649	0749	1h	1h E													
	N Eri	03 55.7	-13 57		0754	0802	15s, 30s	2h 39m W					3.2	M1 III							
	μ Gem	06 19.9	+22 31		0806	0812	1530	27m W					3.2	M3 III a							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

NOV/DEC

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1303	HR 856	02 51	+16°23	30/1	01:35	01 45	10^{min}	01^{E} 16	3" / CLEAR		50μ/12		6.9	F5III						MADORE	
	δ DOR	05 33	-62°30		02:01	02:03	40^{s}	03^{E} 42					4.5V	CEPHEID							
	"				02 05	02:07	2^{min}	03^{E} 36													
	"				02:10	02.13	3^{min}	03^{E} 31													
1304	ℓ LEP	05 32	-17°51		03 20	03,21	25^{SEC}	02^{E} 20					2.8	FOIb							
	"				03:22	03:23	50^{s}	02^{E} 18													
	T MON	06 24	+07°06		03:28	04:00	32^{m}	02^{E} 35					7.4	CEPH							
	HR 2107	05 54	-09°22		04:07	04:20	13^{m}	01^{E} 48					7.0	F2III							
	RS PUP	08 12	-34°30		04:27	05:16	50^{m}	03^{E} 06					8.5	CEPH							
	ℓ CAR	09 44	-62°24		05:21	05:22	30^{s}	04^{E} 33					5.0	CEPH							
	"				05:23	05:25	40^{s}	04^{E} 30													
	"				05.27	05:29	2^{m}	04^{E} 25													
	U CAR	10 56	-59°36		05.35	05:45	10^{m}	05^{E} 22					6.5	CEPH							
	HR 2831				05:55	06:05	10^{m}	01^{E} 25						A2Ib							
	HR 4110				06:13	06:18	5^{m}	04^{E} 20					6.1	FOIa							cl? cluster
1305	HR 4180C				06:36	06:43	6^{m}	04^{E} 04					6.6	G2II							
	HR 4180				06:46	06:48	2^{m}	04^{E} 00					4.9	δ							
	HR 4228				06:52	06:58	6^{m}	04^{E} 00					6.3	AOIa							
	HR 4492				07:04	07:10	6^{m}	04^{E} 38	3" / CIRRUS				6.0	GO+AO							
	HR 4511				07:14	07:19	5^{m}	04^{E} 33					5.8	GOIa							
	"				07:20	07:27	7^{m}	04^{E} 25													
	R MUS	12 40	-69°16		07:38	07:55	17^{m}	04^{E} 55					7.2	CEPH							
	S MUS	12 11	-70°00		07:58	08:12	14^{m}	04^{E} 08					7.0	CEPH							CIRRUS AT DAY BREAK

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS	REMARKS
1306	HR8369	21 57.2	-59° 06	DEC	00:47	01:05	18m	03ʷ00					7.0	F5						MADORE	
	HR8611A	22 37.7	-52° 49	1976	01:12	01:31	19m	02ʷ46					7.0	F0							
	βDOR	05 34.1	-62° 27	1/2	01:39	01:45	6m	03ᴱ55					4.3	F8							
	HR 24	00 08.2	-28°07		02:37	02:46	9m	02ʷ31					5.8	F2							
	HR 35	00 10.6	-35° 16		02:51	02:59	8m	02ʷ43					5.7	F4							HEAVY CIRRUS
	HR 66	00 16.3	-19° 09		03:05	03:20	15m	02ʷ58					7.0	F0							
	HR 115	00 28.7	-14° 55		03:24	03:35	10m	03ʷ00					6.5	F2							WIND !
	HR 210	00 45.0	-22° 35		03:39	03:49	10m	02ʷ58					6.5	sgG6							
	HR 255	00 53.1	-08° 50		03:54	04:10	16m	03ʷ11					7.1	sgG3							
	HR 1025	03 16.9	-77° 21		04:16	04:26	10m	01ʷ02					6.0	F2							
1307	ℓ CAR	09 45.1	-62°12		05:27	05:29	2m	04ᴱ21					4.0	CEPH							
	HR 4511	11 48.8	-62° 09		05:37	05:45	7m	06ᴱ03					5.8	G0							
	U CAR	10 57.3	-59° 26		05:55	06:10	15m	04ᴱ50					6.6	CEPH							
				DEC																	
1308	αSCL	00 57.5	-29° 29	2/3	00:21	00:23	90sec	00ᴱ36					4.4	B5							
	αAQR	22 04.4	-00° 24		00:30	00:31	60sec	02ʷ26					3.9	G1							
	βAQR	21 30.3	-05° 40		00:35	00:36	45sec	02ʷ59					3.7	G0							
	ζ CAP	21 25.3	-22° 27		00:39	00:41	90sec	02ʷ44					4.7	G4							
	εPEG	21 43.0	+09° 48		00:44	00:46	90sec	03ʷ00					4.0	K3							
	αPSA	22 56.2	-29° 45		00:53	00:53	1sec	02ʷ55					1.0	A3							
	HR 339	01 08.4	+19° 27		00:58	01:08	10m	00ᴱ01					6.3	G0							
	18 TAU	03 43.4	+24° 43		01:15	01:20	5m	02ᴱ25					5.6	B8							
	27 TAU	03 47.5	+23° 56		01:23	01:24	40sec	02ᴱ25					3.6	B8							
	η TAU	03 45.8	+23° 59		01:27	01:28	20sec	02ᴱ21					2.8	B7							
	~~β ORI~~	05 13.4	-08° 14		01:32	01:32	1sec	03ᴱ42					0.0	B8							
	γORI	05 24.0	+06° 20		01:36	01:36	4sec	03ᴱ48					1.4	B2							
	κORI	05 46.5	-09° 42		01:41	01:41	6sec	03ᴱ44					1.8	B0.5							
	σORI	05 37.5	-02° 39		01:46	01:46	20sec	03ᴱ53					3.5	O9.5							
	εORI	05 34.9	-01° 13		01:49	01:49	5sec	03ᴱ47					1.5	B0Ia							
	JORI	05 31.0	-07° 21		01:54	01:56	90sec	03ᴱ40					4.4	B0V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1308	ι ORI	05 34.3	−05° 58	DEC 2/76	01:58	01:58	12 SEC	03E 36					2.5	O9							
	ζ ORI	05 53.9	+07°24		02:02	02:02	20S	03E 51	3-4"/CLEAR				2.7	M2							
1309	T MON	06 23.6	+07°05		02:57	03:35	38M	02E 49					7.4	CEPH							
	β DOR	05 33.9	−62° 25		03:42	03:47	5M	01E 48					4.5	CEPH							
	"				03:48	03:51	3M	01E 43													
	RS PUP	08 12.2	−34°27		03:59	05:00	1HR	03E 13					8.5	CEPH							
	ℓ CAR	09 45.0	−62° 17		05:06	05:10	4M	04E 34					3.1	CEPH							
	"				05:10	05:12	2M	04E 32													
	R PUP	07 40.1	−31° 35		05:31	06:00	30M	01E 41					7.5	G0							
	HR2902	07 32.8	−14° 25		06:04	06:20	15M	01E 14					6.5	M2							
	HR2859	07 26.7	−11°28		06:24	06:36	12M	00E 50					6.4	G8							CLUSTER? 00, 02, 03
	HR2859A	"	"		06:36	06:41	5M	00E 45													UNTRACKED
	HR2881	07 29.8	−30° 54		06:45	06:50	5M	00E 40					5.6	G1							
	HR2736	07 09.3	−70° 22		06:55	06:58	3M	00E 02					4.6	G8							
	"				06:59	07:04	5M	00W 02													
	HR4511	11 42.7	−62° 14		07:14	07:18	4M	04E 12					5.8	90I							
	"				07:19	07:25	6M	04E 18													
	UCAR	10 57.2	−59° 31		07:28	08:08	40M	02E 45					6.8	CEPH							
				DEC																	
1310	HR8313	21 43.6	−09° 11	3/4/76	00:34	00:46	12M	03W 08	3"/CLEAR				6.2	G8							
	HR8413	22 04.5	+04°57		00:51	01:03	12M	03W 04					6.3	K4							
	HR8817	23 08.6	−22°35		01:07	01:13	6M	02W 15					5.4	G2							
	HR8982	23 40.7	−17°56		01:17	01:25	8M	00W 50					5.7	G2							
	HR9103	00 03.5	−10°40		01:28	01:40	12M	00W 25					6.2	K3							
	HR210	00 45.2	−22°40		01:43	01:59	16M	01W 20					6.5	G6							
	HR255	00 53.2	−08°55		02:03	02:33	30M	01W 45					7.1	G3							
	HR506	01 41.7	−53°55		02:38	02:52	14M	00W 25					6.4	G0							
	β DOR	05 34.0	−62° 28		02:59	03:04	5M	02E 23					4.0	CEPH							
	HR1737	05 16.8	−13° 34		03:10	03:25	15M	01E 45					6.5	G9							
	ζ ORI	05 53.9	+07°24		03:29	03:30	110S	02E 18					2.7	M2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1310	T MOH	06 23·9	+07°06	DEC 3/4 76	03:34	04:10	36m	01E50	CLEAR	342	50μ/1·2	112½°/1	7·4	CEPH	NEAR	60s	✓	IIa-O	m.s/15m.	MADORE	
	HR2580	0653·3	−24°10		04:16	04:22	06m	02E30					5·6	K3					69°C		
	HR2693	0707·5	−26°23		04:25	04:26	25s	02E35					2·5	F8							
	HR2786	07181	−26°33		04:30	04:42	12m	02E31					6 2	G0							
	HR2833	0724·7	−05°47		04:48	05:10	22m	02E08					7 0	G3							
	RSPUP	0812·4	−34°31		05:17	06:30	73m	01E36					8·5	CEPH							WIND ~ 50 KM/HR
1311	ℓ CAR	09 45·0	−62°22		06.45	06:49	4m	02E51	2½ / CLEAR				4·1	CEPH	"	"	✓	"	"		
	"				06:50	06:52	2m	02E47						"							T = 9°C
	HR4511	11 42·8	−62°19		07:00	07:06	6m	04E29					5·8	CEPH							
	"				07:08	07,12	4m	04E24						"							
	S MUS	12 12·0	−69°58		07:16	07:37	20m	04E29					7·0	CEPH							
	R MUS	12 41·6	−69°13		07:40	08:10	30m	04E23	2" / CLEAR				7 2	CEPH							
				DEL.																	
1312	β DOR	0534·2	−62°22	4/5 1976	00:28	00:33	5m	04E42	3½ / CIRRUS		50μ/1·2		4·5	CEPH	"	"	✓	"	"	MADORE	HEAVY CIRRUS AT SUNSET (AT SUNSET BY CLOUDS)
	"				00:35	00:42	7m	04E34						"							
	HV 953	0525·8	−67°31		00:50	02 18	88m	02E50			50μ/0·2		12·0	CEPH							
				DEL																	
1313	β DOR	0534·2	−62°23	5/6 76	00:24	00:30	6m	04E42	3" / CLEAR				4·5	CEPH	"	"	✓	"	"	MADORE	SOME CIRRUS AT SUNSET
	HR2389	06 29·6	−56°46		00:36	00:50	14m	05E19					6 3	G9							
	HR506	01 41·9	−53°51		00:56	01:10	14m	00E11					6·4	G0							T = 12°C
	ξ PHE	0107 7	−55°21		01:22	01:24	2m	00W39					4·1	B8							
	δ PHE	0127 7	−43°22		01:28	01:30	40s	00W31					3·4	K5							
	"				01:31	01:34	3m	00W28													
	δ PHE	0130 6	−49°09		01:37	01:39	2m	00W30					4·0	K0							
	"				01:40	01:44	4m	00W35													
	ψ PHE	0153·1	−46°21		01:48	01:50	2m	00W22					4·4	M3							
	"				01:50	01:55	5m	00W27													
	η² HYD	0154·8	−67°39		02:00	02:03	3	00W28					4·7	K0							
	"				02:04	02:10	6	00W35													
	X ERI	0155·3	−51°42		02:14	02:15	1	00W43					3·7	G5							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1313	XERI			5/6	02:15	02:17	2m	00E45	~2" / CLEAR		50μ / 1.2		3.7	G5						MADORE	
	-47°597	0156.4	-47°30		02:21	02:25	4m	00W54					4.7	G5							
	"				02:26	02:33	6m	01W00													
	χ HYI	0158.4	-61°37		02:36	02:38	90s	01:03					3.0	F0							
	"				02:39	02:41	2m	01W05													
	i ERI	0240.1	-39°53		02:43	02:45	2m	00W30					4.1	K0							
	"				02:48	02:52	4m	00W34													
	δ HYI	0256.2	-75°06		02:57	03:01	4m	00W31					4.7	K2							
	"				03:01	03:10	9m	00W41													
1314	16 CMA	0653.4	-24°06		03:29	03:31	2m	02E59			50μ / 1.2		4.1	K2p							
	"				03:32	03:36	4m	02E55													
	HR2583	06 53.6	-23°51		03:40	03:50	10m	02E40					6.0	WH							
	HR2650	07 02.8	+20°36		03:54	03:56	2m	02E45					4.5	F7							
	"				03:56	0400	4m	02E40			50μ / 1.2										
	BLUE COMPANION (NORTH)				04:03	04:18	15m	02E23			50μ / 0.8										
	ℓ CAR	0945.2	-62°19		04:25	04:27	2m	04E55					5.0	CEP							
	"				04:28	04:32	4m	04E51													
	RSPUP	0812.6	-34°29		04:38	05:37	1 HR	02E14					8.5	CEP							
	U CAR	1057.4	-59°33		05:41	06:20	40m	04E15					7.0	CEP							
	HR4511	11 43.0	-62°15		06:25	06:29	4m	04E52					5.8	G0							
	"				06:29	06:35	6m	04E45													
	RMUS	12 41.5	-69°10		06:40	07:10	30m	05E08					7.2	CEPH							
	S MUS	12 12.1	-69°55		07:14	07:44	30m	04E06					7.0	CEPH							
	HR3445	08 40.2	-46°30		07:48	07:51	3m	00E27					4.6	F2							
	HR3477	08 43.8	-42°29		07:54	07:58	4m	00E23					5.0	G5							
	HR3634	09 07.5	-43°15		08:00	0802	2m	00E43					4.0	K5							
	"				0802	08:03	1m	00E41													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1315	β DOR	05 33.9	-62°26	6/7 DEC	00:30	00:35	5m	04E33	2" / CLEAR				4.5	CEPH						MADORE	FULL MOON
	"	"	"	76	0035	00:42	7m	04E26													
	ZSCT	00 38.9	-34°05		01:15	01:35	20m	01W21					7.0	F0							
	β DOR	05 33.9	-62°25		01:39	01:44	5m	03E25					4.5	CEPH							
	"	"	"		01:44	01:51	7m	03E18													
	"	"	"		02:38	02:44	6m	02E24													
	HR2072	05 52.2	-57°08		02:48	03:00	12m	02E27					6.6	F5							
	HR3207	08 09.3	-47°12		03:09	03:10	20s/20s/5/20	04E33					1.5	WC							
	C	"	"		03:11	03:21	10m	04E22						Comp'H							
	ℓ CAR	09 45.2	-62°18		03:26	03:33	1m/2/3	05E47					5.0	CEPH							
	UCAR	10 57.1	-59°32		05:00	05:40	40m	04E52					6.6	CEPH							
	HR4511	11 42.6	-62°15		05:42	05:46	4m	04E30					5.5	GO							
	"				05:46	05:52	6m	04E24													
	RMWS	12 41.0	-69°10		05:56	06:26	30m	05E50					7.2	CEPH							
	SMWS	12 12.0	-69°55		06:29	06:59	30m	04E50					7.0	CEPH							
1316	ZSCT	00 38.9	-34°09	7/8 DEC	00:40	00:50	30m	01E00	1-5" / CLEAR				7.0	F0							VERY CALM T=14°C
	HR235	00 49.0	-10°50		01:23	01:31	8m	01W11					5.7	F8							
	β DOR	05 34.2	-62°30		01:35	01:40	5m	03E22					4.5	CEPH							
	"	"	"		01:40	01:48	8m	03E17													
	30 DOR	05 39.6	-69°06		02:05	02:50	45m	02E20					8:?	OB							
	RSPUP	08 12.5	-34°31		02:56	04:26	90m	03E12					8.5	CEPH							
	η CAR	10 44.8	-59°32		04:34	04:39	60s/90s/120s	05:34						PEC							
	nebula	only (S)	"		04:41	04:51	10m	05E22						~~CEPH~~							DEAD STILL
	ℓ CAR	09 45.2	-62°20		04:56	05:02	1/2/3m	04E14					5.0	CEPH							
	UCAR	10 57.4	-59°35		05:05	05:00	55m	04E26					6.6	CEPH							
	HR4511	11 43.2	-62°18		06:04	06:17	~~5m~~/5m	04E56					5.5	GO							
	RMWS	12 41.2	-69°13		06:21	07:01	40m	05E10					7.2	CEPH							
	SMWS	12 12.6	-69°58		07:03	07:33	30m	04E07					7.0	CEPH							

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1317	β DOR	05 33.9	-62°26		07:44	07:52	~~8~~ 7m	02E58					4.2	CEPH							
	HR 4511	11 42.6	-62°15		07:57	08:04	~~8~~ 7m	03E04						C.O							
	ℓ CAR	09 45.2	-62°18		08:09	08:12	3m	00E60						CEPH							
	"				08:12	08:14	2m	00E57						"							
	"				08:14	08:15	1m	00E55						"							
	"				08:16	08:17	1m	00E53						"							
1318	β^2 CET	02 27	+8°21.5	DIC 1976	00 50	00 54	40°,20S	00E43	2"-2"	3.42	150µ	112/mm	43	A0	NDR	2°		IIa-D	M-5 C4°F		Combat
	NGC 246	00:45.9	-12:00	12/13	01 35	02 35	1 hour	02W35			C.C	8.36		PL Neb							
	NGC 246	"	"		02 38	03 08	30 min	03W08													
1319	ORION	05 35	-01 13		04 52	05 02	6min 3m	00W14					1.7	B0							
	ORI I	05 34	-05 24		05 15	05 21	6min	00W33						HII R							
	30 Doradus	05 39.3	-69 01		05 40	05 54	15 "	01W00						HII R							
1320	" "	"	" "		06 20	06 49	30 "	01W57						HII R							
	ORION					07 06	20sec	02W27													
	NGC 2024	~~07 56~~ 5 39.8	-01:51		07:56	08 26		03W33						HII A							
	ORION	05:35	-01:13		08.29		20sec	03W40													
1321	β^2 Cet	02:27	+8:21.5	DIC 1976		0:59	30sec	00E39										IIa-D	M-5 C7°F		Combat
	NGC 246	00:45.9	-12:00	13/14	01:41	02:41	1 hour	02W44						PL Neb							
	β^2 Cet					02:58	38sec	01W21													
	NGC 1535	04.13 3	-12:47.5		03:14	04 14	1 hour	00W49						PL Neb							
1322	ORION	05:35	-01:13			04:45	45min	00:00													
	ORION I	05:34	-05:24		04:53	05:00	7min	00W15						HII R							
	30 Doradus	05:39.3	-69:01		05:13	06 15	1 hour	01W20						HII R							
	ORION					06:35	45min	01W50													
1323	NGC 3324	10:44.6	-59:21		07:39	08:08	30min	01E47						HII R							
	ORION					08:50	45min	03W50													
				DIC 1976																	
1324	λ ERI	5:08	-8:47	14/15			00:52	03E24	2"				43	B2				IIa-D	M-5 C7°F		Combat
	NGC 256				01:06	03:05	2 hours	03W13													
	β^2 Cet					03:13	30sec	01W39													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1324	λ Eri			Dec		3:24	30sec	00E 52													
1325	NGC 1535			76	3:45	4:00	15min	00W:40													
	NGC 1535			14/15	4:06	4:36	30min	01W.17													
	ζ^2 cet					4:56	30sec	03W:17	3"-4"												Clouds + High Cirrus
	ORION I				5:31	5:36	5min	00W.55													" "
1326	λ Eri					6:00	30sec	01W:46													" "
	ORION II				6:07	6:12	5min	01W:31													+ moon "
	ORION II				6.13	6 28	15min	01W.47													" "
	η Carinae	10 44.2	-5[illegible] 26		6:52	7:51	1hour	02E 00													[illegible]
1327	ζ^2 CET			Dec 76 15/16		00:56	30sec	00E:35	3"-4"									[illegible]	[illegible]	[illegible]	
	NGC 1535				01 03	01.33	30min	01E:44													
	NGC 1535				01.36	01:52	15min	01E:25											Getting Win.		The [illegible]
	30 Doradus	05:39.4	-6[illegible]:04		02 05	02:21	15min	02E:22											Some clouds + cirrus		See note back [illegible] position
1328	ζ^2 CET					02:59	30sec	01W.28	2"-3"												
	ORION I				03:03	03:07	3min	01E:31													
	NGC 2440	07:41 0	-18.0[illegible]		03:18	03:48	30min	02E:57						PL N[illegible]							[illegible] !!
	ζ^2 cet					04:42	30sec	03W:12													
1329	" "					05:10	"	03W 40													
	NGC 3195	10:11 3	-80 41		05:57	07:27	1½ hour	01E:47						PL N[illegible]					Observing through [illegible]		[illegible] west
	η Carinae	10:43.5	-59 21		07:43	08:13	30min	01E:33											Cl[illegible]	"	
1330	ζ^2 CET			Dec 76			30↑	Exp[illegible] stop [illegible] min [illegible]													High + Cl[illegible] Cirrus
↓	↓			18[illegible]		01:03	35sec	00E:15										[illegible]	[illegible]	[illegible]	Observing through
	NGC 1535				01:47	02:48	1hour	00E 17													clouds + wind
	ζ^2 CET					2:58	30sec	01W.40													
	ORION I				03:07	3:10	3min	01E:16	~3"												Very windy
1331	ORION I				05:39	5:42	"	01W.17	3"-4"												Sky much better
	" II				05 43	5:47	"	01W:22													"
	" III				05:50	6:00	10 "	01W.35													"
	λ Eri					6 04	30sec	02W 07													

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1332	ORION IV				6:33	6:47	15min	2W:17													Clouds
	λ Eri			Dec 18		6 57	40sec	3W:00													
1333	g² CET			19/20		0:54	30sec	00E:20	1.5"											long	
	108 -76°1	00:39.2	-13°58		1:42	3:11	1½ hour	03W:46					Pl Neb								
	NGC 1535				3:19	3:29	10min	02W:28													
	ORION I				3:34	3:38	3min	00E:44	1"												
1334	g² CET					3:57	30sec	02W:43													
	NGC 1535				4:01	4:45	45min	01W 46													
	30 Doradus	05:39.5	-69:02		4:55	5:25	30min	00W:59													
	NGC 1966	5:27.4	-68:47		5:44	6:14	30min	02W:00					HIR								
1335	λ Eri					6:33	30sec	02W:33													
	ORION IV	[illegible]			6:41	7:21	40min	03W:01					HIIR								
	NGC 2440				7:33	7:47	16min	01W:20													
	NGC 2440				7:49	7:54	6min	01W:27													
	η Carinae	10:44.4	-59:33		8:01	8:26	25min	01E:26													
1336	CR 121 #2	06 53	-24 07	Jan	0625	0636	2 min		1.5"	3.42	100 μ 1.2	112/3.42			Ne A	60s	~~Ne A~~	II a O	M-5 67°F 15m	D. HANES	
	#1	06 53	-24 07	30/31	0647	0707	20m														
	#3	06 53	-24 07		0717	0737	20m														
	#4	06 53	-24 07		0745	0805	20m														
	#5	06 53	-24 07		08 09	08 39	30m														
1337	CR 140 #1	07 23	-32 06		09 04	09 21	5m/10m														
	#2	07 23	-32 06		09 24	09 54	30m														
	#4	07 23	-32 06		10 08	10 38	30m														
	#5	07 23	-32 06		10 41	11 11	30m														
	#3	07 23	-32 06		11 19	11 49	30m														
	TR 10 #1	08 47	-42 23		11 55	12 25	30m														
	#11	08 47	-42 23		12 31	13 01	30m														
	#14	08 47	-42 23		13 08	13 38	30m														
	Am Lfk #1	11 4.8	-59 41		13 50	14 20	30m														

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1338	S Scl	00 14.2	-32 28	Jan 31	0637	0737	1h	6h W	1"	7.0	100μ 0.6	112 / 4.42		M ?	NeH.	2s		IIaD	M-S GOF 15m	Max	
	γ Eri	03 56.7	-13 31	Feb 1	0754	0756	30s 45s						3.2	M1 III							
	119 Tau	05 30.7	+18 30		0809	0814	60s 30s	1h 20m W					4.7	M2 Ib							
1339	R Oct	05 22.1	-88 20		0853	0930	30m	3h W													
	6 Gem	06 08.8	+22 53		0945	0940	2m 1m	2h 20m W	2"				6.1	M1 Ia							
	υ Cen	07 32.4	+27 00		0954	0957	40s 20s	1h 5m W													
1340	π Leo	09 58.7	+08 11		1010	1019	60s 40s 20s	1h E					4.7	M2 III							
	S Vol	07 30.4	-72 50		1027	1055	30m	2h W													
1341	R Oct	05 22.1	-88 20	Feb 4/2	0658	0715	15m	45m W	3"-6"												
	45 Hri	02 54.6	+18 14		0726	0734	3m 1m	3h 25m W	3"-4"												CIRRUS
	2 Cet	03 01.1	+04 05		0737	0742	20s 15s	3h 25m W	3"-6"												95% of HUMIDITY
1342	119 Tau	05 30.7	+18 30	Feb	0629	0639	4m 2m 1m	15m E	2"-3"												
	R Vol	07 05.9	-72 50.4	2/3	0655	0713	15m	1h 25m E	3"												
	Y Vel	09 28.2	-56 53.4		0809	0829	20m	2h 30 E	3"-4"												~100% of HUMIDITY
1343	R Vol	07 05.9	-72 50.4	Feb	0709	0755	45m	1h E	2"												
	S Vol	07 30.9	-72 50	3/4	0801	0903	1h	40m E	2"-4"												
	Y Vel	09 28.2	-56 53.4		0911	0955	45m	1h 20m E	2"-3"												
	π Leo	0957.9	+08 02		1009	1013	2m 1m	48m E	2"												
				FEB 6/7																	F+ML Trouble with VFO & S slow gave up.

F MP FitzGerald } WATERLOO
ML M. LUIKEN

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1344	HR 46241	6 31.0	4 49.7	FEB 7/8	5:35		40s		2" good	325	100μ/0.8	112/6.8	6.0	KO III				II-D	D 19	F+ML	-3
					5:37		90s														-3
					5:39		90s														-3
					5:42	5:47	180s														1
1345	S 284-1	6 43.6	00 20		6:18	7:08	50m		1-2		100μ/0.6		11.8								-5
	NGC 2287-104	6 46.0	-20 44		7:31	7:33	140s				100μ/0.8		8.15								-3
	-125		"		7:45	8:00	14m	1:10W	2				10.1								-1
	-116	"	"		8:08	8:24	10m/14	1:40W				.2/7.0	10.1								+1
	-108	"			8:39	8:43	4m	1:58W	2"				8.8								+5
															NeA						+3
1346	HR 3525				9:47		31s		2"					O1 V							-3
	"				9:49		33s	1:01W													-3
	HR 2769	7 15.2	-38 16.1		10:[illegible]		20s							B4 V							[illegible] -1
1347	HR 4540	11 49.5	1 47		10:32	10:38	6m	1:11E					3.3	F9 V							-5
	HR 3016	2 44.2	-37 50		10:58		30s	3:16W					3.4	B3 IV							-3
	HR 3017	"	"		11:03		12s						5.3	CK							[illegible] -1
1348	HR 3878	9 44.3	-30 06		12:11		40s	2:27W					6.3	P[illegible] III n							[illegible] +5
	5132	13 38.4	-53 20		12:22		100s	1:13E					+5m 2.3	B1 III							+3
	3944	9 55.7	-71 16.5		12:37		48/35						[illegible]	B1 IG							+1
	5379	14 23.[illegible]	-68 04		12:47		38s	1:30E					[illegible]	A3 Ic							-1
	5680	15 16.7	-50 25		12:59		18s	2:14E					5.[illegible]	O7 I							-3
1349	NGC 6383-2	17 33.[illegible]	-32 33		13:36	13:5[illegible]	19m/20m	[illegible]					10.4	B8	NeA	3s					-5
	-1				13:58		20s	3:35E					5.7	O7V+O7V							[illegible]
1350	S243-2	5 37.9	+23 17	Feb. 8/9	5:17:22	5:27	10m	0:09E	2"				9.5								-5
	5243-15	"	"		5:30	5:46	12m/14m	0:10W					9.5							double	-3
	DOL24-21	6 42.5	+01 20		6:03	6:23	20m	0:19W	1-2		100μ/0.6		10.3								-1
	DOL24RH-5	6 45.5	+01 13		6:45	07:11	25m/25	0:19W					10.4								+1
	S287-118	6 57.3	-04 44		7:20	07:51	30	0:14W	1"				10.5							[illegible]	+3
															NeA	3s					5
1351	HR 2782	7 17.7	-24 54		8:12	08:19	7m30	1:02W			100μ/0.8		4.2	O9 Ib							-5

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1351	HR 2827	7 23.1	-24 14.8	Feb 8/9	8:34	8:35	80s 89s	1:13W	1"	325	100μ/0.8	112/12.0	B 4.2	B5Ia							-3
	HR 2981	7 40.4	-38 28.6		~~8:42~~	8:42	13s 19s	1:03W					5.5	B5 V							-1
	HR 3001	7 42.9	-38 08.8		8:47	8:48	35s 40s	1:07W					6.4	B7 III							+1
	HR 3055	7 48.5	-46 18		8:56	4:02	6m	1:14W	1"				4.0	B0 III	NeA	3s					+3
1352	HD 69267	8 15.2	+04 16		4:23		7s	1:08W					5.0	K4 III							+5
	HR 3107	7 55.6	-40 40		4:33:49		40s/45s	1:39W					6.6	B2 V							+3
	~~HR 3219~~	~~8 10.1~~	~~-37 43~~				~~40s~~						~~6.4~~							~~FINAL SHOT~~	~~+1~~
	HR 3442	8 39.2	-52 58		10:56		7s/20s	2:18W					5.0	B3 IV							+1
	HR 3525	8 49.4	-42 00		11:12		24s 32	2:29W					6.1	O9 V							-1
	HR 4876	12 49.8	-60 12		11:24		24 30	1:21E					6.1	A2 Ia+							-3
	HR 5132	13 38.4	-53 20		11:36	11:38	40s 97s	2:00E					2.3	B1 III							-5
1353	NGC 6383-3	17 33.0	-32 33		12:00	12:30	30m	(5:03E)	2"-3"		100μ/0.6		10.6	~A2							-5
	-14	"	"		12:35		14m 16m30						10.2	~B5							-3
	-44	"	"		12:58	13:06	8m		2"		100μ/0.8		9.1								-1
	-97	"	"		13:10	13:22	12m						9.7	B3							+1
	-114	"	"		13:26	13:43	16/17	3:52W					10.1								+3
	-65	"	"		13:46	13:57	14 10m30	3:36W			100μ/0.6		10.1	Be						all above out of focus WHY THE CHANGE?	+5
354	S 243 -2	05 37.9	+23 17	Feb 9/10	05:48	06:00	10m 11m47	0:24W	1-2"		100μ/0.86		9.4								-2
	-15	"	"		06:02	06:18	14m/16	0:2E		304	100μ/0.8		9.5							double	-3
1355	DOL 24 -21	06 42.5	+01 20		06:53	07:13	20m	0:31E			100μ/0.6		10.3								-5
	DOL 24 RH-5	06 45.5	+01 18		07:43	08:09	25m	1:18W			"		10.4								-3
	S 287 -115	06 57.3	-04 44		08:13	08:43	30m	1:47W	2"		"		10.5								-1
	NGC 2546-9	08 11.5	-37 34		09:13	09:19	6m	1:08W	2"		100μ/0.8		8.95	B9							+1
	" -10	11.3	-37 " 36		09:24:30	09:29	4½	1:18W	2"		"		8.58	G6			(NEA)				(+.43)
1356	-30	10 9	-37 31		10:16:31	10:20	4m	2:10W	2-3"		"		8.76	G5							-5
	-76	11 3	-37 42		10:25:24	10:43	18m		1-2"		"		9.95	G4						Final dropped	-3
1357	-98	10 5	-37 38		11:12	11:33	20m	3:24W	1-2"		"		10.12	A3:							-5
	~~NGC~~ 282	11 0	-27 23		11:38	11:50	12m/12m26	3:41W	"		"		9.66	A1							-3
	NGC 6383-2	17 33	-32 34		12:01:30	12:11:30	20m		2-3"		100μ/0.6		10.4	B8							-1
	-3	"	" 37		12:25:30	12:55	30m				"		10.6	~A2							+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
1357	NGC 6583-17	17.33	-22 37	Feb 9/10	13 01 20	13:16	14				100μ/0.6	11:/7.0	10:	~B5								+3
	-44				13:22	13:30	8m				100μ/0.7		4.1									+5
1358	-47				13 40	13:52	12m	3:42 E					9.7	B5								-5
	-1				13:55		20s/10s				100μ/0.8		5.72		07+07							-3
	-1		1		13:57	13:58	48s				100μ/1.2				"							-1
	-1				13:59:45	14:00:39	54s				100μ/1.2				"							+1
	-1				14:01:26	14:01:51	25s	3:32 E			100μ/1.2				"							+3
															Ne-17							+5
1358	S267-1	6 14.4	+14 17	Feb 10/11									10.4									-5
	NGC 2287-184	6 45.2	-20 45		7:01	7:04	5m/3m30	0:20W	2"		100μ/0.8		8.18									-5
	-180	6 45.1	"		7:11	7:25	14m	0:41W			"		9.87									-3
	-112	.2			7:31	7:39	8m	0.55W					9.28									-1
	-104				7:46	7:51	5m20 540	1:07W					8.15								double	+1
	-105				8:19:	8:36	17m	1:53W					10.07									+3
																						+5
1360	-116				9:02:10	9:19:10	17m	2:35W					10:13		Ne-A	3s						-5
	-108				9:27:35	9:35:10	5:50/7:35	2:52W					8.82									-3
	-109				9:38:30	9:44:31	5:50/6:03	3:00W					8.82									-1
	-115				9:49:50	10:02:51	12m/13.07	3:19W					9.46									+1
	-111				10 09:00	10:16:30	730	3:52W					9.18		Ne-A	3s						+3
1361	NGC5749-6	14 47.1	-54 25		10:40:30	10:54:40	14		1-2				9.84									-5
	-4				11:00:20	11:30:30	30	3:17E	1-2		0.6		11.1									-3
	-13				11:35	12:05	30	2:43E					11.1									-1
	-16				12:12	12:32	20						10.5								Plate dropped	+1
1362	-8				13:04	13:18	14	1:29E			0.8		8.84									-5
	-6				13:28:14	13:58	30	0:49E			0.6		11.1									-3
											0.8				Ne-A	3s						-1

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1363	R Oct	05 22.1	-88 20	March	0103	0123	15m	2h20m W	2"	7.0	100μ / 0.6	112 / 4.42			NaH	2s		IIaD	M-567F 15m	Mex	
	R Vol	0705.9	-72 50	3/4	0143	0212	20m	1h 15m W													
	Z Pup	07 32.6	-20 42		0230	0344	1h														
	V Gem	07 32.9	+27 00		0350	0357	2m 1m						4.1	M0 III							
1364	R Oct	05 22.1	-88 20	4/5	2232	2243	10m 30s	1h 40m W	3"	7.0	100μ / 06	112 / 4.42			NaH	2s		IIaD	M-567F 15m		
	R Vol	0705.9	-72 50		2250	0158	1h	58m W	"												
	119 Tau	0529.7	+18 33		0217	0220	2m 1m 30s	3h W	"				4.7	M2 Ib							
1365	S Vol	07 30.9	-72 50		2249	0344	1h	2h 25m W	2"												
	V Gem	07 32.9	+27 00		0420	0425	2m 1m 30s	3h W	"				4.1	M0 III							
1366	R Vol	0705.9	-72 50	5/6	0030	0116	40m	20m W	3" → ∞	7.0	100μ / 0.6	112 / 4.42			NaH	2s		IIaD	M-567F 15m		CIRRUS
	S Vol	0730.9	-72 50		0121	0202	40m	45m W	3"-4"												
	Y Vel	0928.2	-56 53.4		0218	0255	1h 30m	40m W	3"-∞												CLOUDS
	π Leo	0958.7	+08 11		0300	0303	90s	15m W	"				4.7	M2 III							CLOUDY
1367	119 Tau	05 [illegible]	+[illegible]	Apr	0022	00[illegible]	2m 1m	2h [illegible] W	3"-6"	7.0	[illegible]	112 / 4.42	4.7	M [illegible]	Na	[illegible]		IIa	M-567F [illegible]		
	2 C	05 53.8	+07 29	1/2	0032	00[illegible]	4m 2m 30s	2h 45m W	"				3.8	M2 Iab							
	μ [illegible]	05 [illegible].4	+22 31		0044	0049	1m 30s	2h 2[illegible] W					3.2	M3 III e							
136[illegible]	μ [illegible]	[illegible] 21.4	+[illegible]		00[illegible]	00[illegible]	30s	2h 4[illegible] W	"				3.2	M3 III e							
	25 Gem	07 [illegible].6	+[illegible] 53		0103	0112	2m 30s, 1m	1h 3[illegible] W	3"				4.1	M0 III							
	π [illegible]	05 [illegible].7	+0[illegible] 11		0111	0124	3m, 1m 30s	39m E	"				4.7	M2 III							
137[illegible]	Y Vel	0928.2	-56 53		0152	0323	1h 30m	1h 55m W	2"												
137[illegible]	RX [illegible]	14 21.2	+25 47		0352	0412	11m 5m 3m	2h 15m E	3"-4"				7.0	M [illegible]							
1371	R Vol	0705.9	-72 50	2/3	0046	0132	30m, 15m	2h [illegible] W	2"												
	S Vol	0730.9	-72 50		0136	0206	30m	2h 35m W	"												
1372	V Gem	0734.6	+26 59		0231	0234	2m, 30s	3h W	"				4.1	M0 III							
	π [illegible]	07 55.9	+05 17		0241	0247	2m, 30s	56m W	"				4.7	M2 III							
1373	RR Sgr 2	16 56.0	-30 10		0426	0437	30m	4h 15m E	"												DM CA -30 13626
	RR Sgr 1	16 [illegible].1	-30 10		0431	0436	46m	3h 40m E	"												RR SGT CA -30 13620
1374	119 Tau	05 30.7	+15 30	3/4	0024	00[illegible]2	4m, 2m, 1m	3h 10m W	3"-4"				4.7	M2 Ib							
	2 Cnc	05 53.3	+07 29		0036	0041	45s, 30s	2h 5[illegible] W					3.8	M2 Iab							CIRRUS

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1375	[illegible]	05 53.3	+02 27	Apr	0050	0051	1m	3h 5m W	3"–5"	7.0	100µ / 0.6	112 / 4.42	0.8	M2 Iab	N=A	2s		IIaD	M-S 677F 15m	Maw	CIRRUS
	[illegible]	06 21.4	+22 [illegible]	3/4	0056	0101	3m 1m, 30s	2h 45m W	"				3.2	M3 IIIa							
1376	SV [illegible]	07 30.9	-72 50		0125	0205	45m	2h 45m W	"												
1377	VZ [illegible]	07 34.6	+27 00		0224	0228	2m 2m	3h W	"				4.1	M0 III							
	[illegible]	09 58.9	+08 13		0233	0233	3m 1m	[illegible]	"				4.7	M2 III							CIRRUS
1378	HD 98560	11h 18.4	-64° 26.5	Apr 20/21			3m, 5m, 8m	~~20m~~ 1h W	2"	7.0	100µ / 1.2	112 / 4.42	6.2	F5 V	N=A	60s		IIaO	M-S 677F 15m	Fair + Mx	
1379	HD 130325	14h 46.6	-12° 45.9	A77	0644	0635	6m, 8m	~~20m~~ 1h W	2"				V=6.4	G5							
	~~HD 130819~~ S2 LIB	14h 49.3	-15° 55.9		0642	0647	1.5m, 2m	1h, 10m W	"				V=2.7	A3m							wrong star!
	HD 130819	14h 49.3	-15° 55.9		0653	0659	1.5m, 2m	1h 25m W	"				V=5.1	F5 III-V							
	HD 137763	15h 26.8	-09 15.3		0711	0728	7m, 9m	1h 15m W	"				V=6.9	dK1							Ω²
	HD 136435	15h 31.0	-10 21.3		0735	0756	7m, 8m	1h 40m W					V=6.7	G0							
	HD 137631	15h 26.1	-10° 52.3		0809	0830	20m	2h 20m W					V=7.7	G0	brighter						double!
1380	HD 137631	"	"		0852	0922	30m	3h 15m W					V=7.7	G0	fainter						
	HD 155555	17h 15.0	-66° 55.3		0930	1004	8m, 10m, 8m	2h 10m W					V=6.7	G5 II+k0 III-V							
1381	HD 67485	8h 05.9	-29° 18.4	APRIL 21/22	2354	0018	9m, 12m	1h 30m W	1½"-2"	7.0	100µ / 1.2	112 / 4.42	V=6.9	G III-V	N=A	60s		IIaO	M-S 677F 15m	Fair	DEC PRE-LOAD MAKING AN AWFUL RACKET — NOT USING IT
	HD 65923	7h 59.0	-30° 18.4		0029	0107	15m, 20m	2h 25W					V=7.6	G0							
	HD 66454	8h 01.5	-29° 28.4		0117	0140	9m, 12m	2h 55m W					V=6.9	G5	brighter						double!
	HD 66454	"	"		0144	0209	25m	3h 25m W					V=6.9	G5	fainter						16°C H=40%
	HD 101379	11h 38.3	-65° 15.4		0225	0236	3m, 6m	0h 15m W					5.7v	G5/8 IIIp							windy
	HD 119285	13h 42.4	-61° 15.2		0308	0453	1h 45m	0h 30m W					9.4	K1 Vp							
	HD 118714	13h 38.5	-60° 26.1		0532	0653	1h	2h 15m W					8.9	G0 V							
	HD 155875	17h 17.4	-70° 01.4		0648	0657	1m, 9m	1h 05m E					V=6.5	G2							
1382	HD 155875	17h 17.4	-70° 01.4		0716	0723	6m	0h 40m E					V=6.5	G2							
	HD 154903	17h 11.4	-67° 09.4		0731	0741	3.5m, 5m	0h 15m E					V=5.9	K0							
	HD 158170	17h 26.7	-08° 10.3		0759	0815	5m, 8m	0h 05m W					V=6.3	G0 III							
		17h 28.4	-05° 53.3		0927	0842	5m, 8m	0h 30m W					V=6.4	G5							
		17h 18.6	-05° 52.3		0848	0904	5m, 8m	1h 05m W					V=6.3	G5							
1383	GK HYA	8h 29.5	+02° 22	APR 22/23	0001	0131	1h 30m	~~1h 23m~~ 3E	2"	7.0	100µ / 1.2	112 / 4.42	V=9.4		N=A	60s		IIaO	M-S 677F 15m	Fair	DEC PRELOAD QUIET!
	HD 85563	9h 52.4	-46° 04.7		0148	0158	3m, 5m	1h 30W					V=5.6	K0							T=15°C H=40%
	HD 87783	10h ~~05~~ 51	-47° 13.7		0210	0214	1.5m, 2m	1h 30W					V=5.1	K0 III							windy

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1383	HD 85622	9^h 50.7	-46° 25.7	APR 22/23	02 24	02 30	45s, 60s, 1.5m	02^h 00W	2"	7.0	100μ/1.2	112/4.42	V=4.6	G5+G6	NeA	60s		IIa O	M-S 67F 15 min	Fgi	15°C H=46%
cont	HD 101379	11^h 38.3	-65° 15.4		02 39	02 45	2m, 2.5m	00^h 27W					5.7v	G5/8 IIIp							wrong star
	HD 119243	13^h 41.9	-60° 19.1		03 12	03 42	1^h 30m	00^h 18W					9.4	G5 III							wrong star
1384	HD 127535	14^h 32.5	-60° 18 3		05 50	07 49	2^h	02^h 38W		7.0	100μ/1.2	112/4.42	9.7	K1 IV/Ve	NeA	60s		IIa O	M-S 67F 15 min	Fgi	T=15°C H 38%
	HD 154903	17^h 11.4	-67° 09.4		08 08	08 32	6m, 7m, 8m	00^h 43W					V=5.9	K0							
	70 Oph(A)	18^h 01.2	$+02^\circ$ 30.2		08 44	08 44	36s,	00^h 02W					4.02	K0 V							
1385	HD 69830	8^h 17.3	-12° 31.8	APR 23/24	23 44	23 54	3m, 5m, 5m	01^h 00W	2"	7.0	100μ/1.2	112/4.42	V=6.0	G8 V	NeA	60s		IIa O	M-S 67F 15 min	Fgi	T=14°C H=70%
	HD 70136	08^h 18.8	-12° 45.8		23 58	00 21	9m, 12m	01^h 17N					V=6.9	K2							light clouds
	HD 70673	08^h 21.7	-12° 57.8		00 26	00 41	5m, 7m	01^h 45N					V=6.3	K0							clouds
	HD 118717	13^h 38.5	-60° 26.1		02 59	04 32	1^h 30m	00^h 20W					8.9	G0 V							T=14°C H=38%
	HD 128227	14^h 36.2	-60° 02.8		04 44	06 02	75m	00^h 50W					9.1	K0 III					T=12°C, H=42%		windy
	HD 134692	15^h 12.9	-66° 48 3		06 14	07 37	80m	01^h 50N					9.2	K1 III(p)					T=11°C, H=46%		windy
	HD 137164	15^h 25.8	-62° 56.3		08 01	08 31	60m	halted due to clouds + wind					8.8	K1/2 IIIp					T=11°C, H=48%		
1386	HD 70136	8^h 18.8	-12° 45.8	APR 25/26	~~23 58~~	00 07	15m, 20m	01^h 20W	2"-2½"	7.0	100μ/1.2	112/4.42	V=6.9	K0	NeA	60s		IIa O	MS 67F 15 min	Fgi	T=12°C, H=58%
	GK HyA	08^h 29.5	$+02^\circ$ 22		00 26	01 55	1^h 30m	03^h 00W					V=9.4								T=11°C, H=61%
	HD 77137	08^h 58.7	-21° 44		02 04	02 43	9m, 12m, 15m	05^h 20W					V=6.9								T=11°C, H=58%
	HD 101379	11^h 38.3	-65° 15.4		02 58	03 02	1m, 2m	00^h 55W					5.7v	G5/8 IIIp							
	HD 119243	13^h 41.9	-60° 19.1		03 44	05 17	1^h 30m	01^h 10W					9.4	G8 III							
	HD 127535	14^h 32.5	-60° 18 3		05 31	07 36	2^h	02^h 35W					9.7	K1 IV/Ve							T=11°C H=57%
1387	HD 78643	09^h 07.7	-25° 44'	APR 24/27	23 53	00 41	9m, 15m, 20m	01^h 10W	1½-2"	7.0	100μ/1.2	112/4.42	6.8	G1	NeA	60s		IIa O	MS 67F 15 min	Fgi	T=11°C H=59%
	HR 3585	08^h 58.8	-28° 42.7		00 46	01 03	5m, 7m	01^h 35W					6.4	G5							
	HD 82281	09^h 27.6	-64° 15'		01 26	02 51	1^h ~~40~~ 35	03^h 00W					9.5	G0 V(p)							T=12°C, H=57%
	HD 128618	14^h 38.4	-59° 38.8		04 06	05 52	1^h 40	00^h 50W					9.5	K2 III							T=13°C, H=51%
	RV Lib	14^h 34.4	-17° 55.8		06 11	07 21	70m	02^h 25W					9.0								T=12°C, H=52%
1388	HD 78643	09^h 07.7	-25° 44'	APR 27/28	23 31	23 54	9m, 12m	00^h 27W	2"	7.0	100μ/1.2	112/4.42	6.9	G1	NeA	60s		IIa O	MS 67F 15 min	Fgi	T=14°C, H=54%
	HD 81700	09^h 23.7	-63° 36.8		00 05	01 11	1^h	01^h 30W					8.9	G2 V							
	HD 82902	09^h 31.3	-63° 52.8		01 20	02 50	1^h 30m	03^h 00W					9.2	F2 IV							T=13°C.
	HD 101379	11^h 38.3	-65° 15.4		03 02	03 04	1m, 2m	01^h 05W					5.7v	G5/8 IIIp							
	HD 119243	13^h 41.9	-60° 19.1		03 20	05 07	1^h 45m	01^h 07N					9.4	G8 III							
	HD 136064	15^h 20.0	-66° 31.5'		06 10	07 05	50m	01^h 26W					8 7	K2 III							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1388	HD 136508	15h 23.2	-68° 37.5		07 21	08 38	75m	02h 57W	2"	7.0	100μ/1.2	112/4.42	9.1	K2 III	NeA	60s		IIaO	M-5 67°F 15 MIN	Fgi	T=11°C, H=52%
1389	HD 82281	09h 27.6	-64° 15	APR 28/29	00h 13	02 13	2h	02h 30W	1½-2"	7.0	100μ/1.2	112/4.42	9.5	G0 IIIp	NeA	60s		IIaO	M-5 67°F 15 MIN	Fgi	T=12°C, H=34%
	HD 101379	11h 38.3	-65° 15.4		02 20	02 22	2m	00h 30W					5.7v	G5/8 IIIp							
	HD 127535	14h 32.5	-60° 18.3		02 41	05 12	2h 30m	00h 25W					9.7	K1 III/IIe	wrong star						T=13°C, H=41%
	HD 137164	15h 25.8	-62° 52.3		05 21	06 17	55m	00h 35W					8.8	K1/2 IIIp							
	HD 141747	15h 52.6	-65° 49.5		06 23	07 19	55m	01h 10W					8.8	G2 V							
	HD 143324	16h 01.7	-64° 23.5		07 28	08 23	55m	02h 07W					8.8	G8 III							
1390	RV Lib	14h 34.4	-17° 55.8	APR 30/1	02 15	03 26	70m	01h 15E	2"	7.0	100μ/1.2	112/4.42	9.0		NeA	60s		IIaO	M-5 67°F 15 MIN	Fgi	T=10°C H=45%
	"C1"	14h 34.7	-19° 00		03 32	04 42	70m	00h 00													
	"C2"	14h 34.5	-19° 04		04 46	06 07	80m	01h 25W													
1391	HD 63032	07h 44.3	-37° 54.2	MAR 1/2	23 14	23 24	25m 15m	2h W		7.0	100μ/1.2	112/4.42	6.5	K5	NeA	60s		IIaO	M-5 67°F 15 MIN	Fgi	
	"	"	"		23 25	23 42	7m 9m	2h 20m W					6.5	K5							
1392	NGC 2808	09h 11.2m	-64° 48'	June	23 46	00 43	15m 30m 10m	4h 30m W	2"→6"	8.36	100μ/1.2	112/3.42	Red		NeA	2s		IIaD	M-5 67°F 15 MIN	JEFFERS MAX	CIRRUS
1393	H1-36	17h 48m	-37° 01	21/77	0204	0313	20m 45m	1h 18m E	2"		0.6		"								
1394		"	"		0345		1h,		2"		0.6		"								
1395	H1-36	"	"		0535	0622	45m	1h 42W	2"		220μ/0.6		"								
1396	"	"	"		0748	0815	30m,	3h 45W	cirrus		220μ/0.6		Blue								
	HM Sgr	19h 41.1	16° 41.5		0847	0927	40m	3h 10W	clouds		220μ/0.6		"								
1397	β Cen	14h 02.1m	-60° 16'	July 5-6	0024	0032	5m, 10m, 15m	0h 42m W	3"	7.0	100μ/1.2	112/3.42	0.9	B1	NeA	60s		IIaO	M-5 67°F 15 mm	CIRRUS MAX	CLOUDS
	χ Cen	14h 09.6	-41 04		0042	0101	2m 5m 10m	1h 9.5m W	"		0.8	"	4.5	B2	"						
	ω Lup	15h 16.5	-42 29		0112	0125	3m, 4m	0h 1m W	"		0.6	"	4.3	K5							T=4°C, H=55%
	ε Lib	15h 37.2	-29 42		0132	0145	3m, 4m	0h 35m W			1.2	"	3.8	B3							
1398	λ Sco	17 33.6 (1975)	-37 06	JULY 12-13	0330	0337	10, 20, 25m	0h 45W	2"	7.0	100/0.8	112 ?	1.6	B1 - III	NeA	2s		IIaO			
1399	NGC 6383-158	17 31.0	-32 38	JULY 13-14	23:54	00:08	14m/1.4	2h 39m E	2-3"	7.0	100/0.8	112/3.52	B 9.9	F	NeA	3s	1	IIaD	B M 65 4m	CIRRUS FIELD/BAD	T=8°C, H=45%
1400-1	-161	17 32.3	-32 38'	"	20 42	01 12	30/ ✓	1:38 E	"				10.7	3 K	NeA	3s	1				
-3	SLS 4283	17 35.7	-35 02		01:22	01:44	22/ ✓	1:09 E					10.4	F5 II			3				
-5	SLS 4289/1 NGC 6396	"	"		01 47	02 11	24/ ✓		2"		0.8		10.6	OB							
-7	SLS 4286	17 33.8	-35 20		02:17	02:23	6/ ✓	0 30 E	2"		1.2		8.7:	OB ech							
-9	SLS 4300	36.3	"		02 27	02:47	20/ ✓	0:06 E			0.8		10.4	OB?							
-11															NeA	3s					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1977	DEC. 1977	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS	REMARKS
1401-1	SLS 4299	17 36.3	-35 18	JULY 13-14	03 03	04 03	60m / wk	01 10W	2"	3 52	100/0.8	112/70	11.3	OB+r	NeA	3-5		IIaD	D-19 65u - 5mm	CROWE P FITZGERALD	avg mth.
-3	SLS 4162	17 25.3	-32 33		04 09	04 16	8 / "	01.36W			/1.2		8.9	A1Ib							
-5	FL 370	17 24.0	-32 14		04 21	04 37	16 / ✓	01:57W			/0.8		10.2	B3:							
-7	FL 371	"	"		04:48	05:02	14 / ✓	02:24W			/0.8		10.0	A1:II:							
-9	SLS 4142	17 22.9	-34 11		05:16	06:36	80 / need longer	04:08W			/0.6		11.9	OB+r							
-11	FL 562	17 28.2	-33 39		06:43	06:54	11 / ✓				/0.8		9.4	OB-							
1402-1	HD 204807 (B10)	21 30.8	-05 40		08:28	08:34	6m / wk	7:51SW	2"	3.52	100/1.2		3.7	G0Ib							5m rutter used
-3	HD 221148	23 28.6	-04 39		08:45	08:47	1m45s / ✓	0:45W			/1.8		7.3	K2-5III-IV							
-5	HD 221148				08:49	08:50.5	1m30s / wk				/1.2										
-7	HD 209750	22 04.6	-00 25.4		08:56.5	09:04	7½ / wk	01:45W			/1-2		3.9	G2Ib							5m rutter used
-9	HD 219615	23 15.9	+03 09		09:13	09:25	12 / wk	00:55W			/1.2		4.6	K0IIIb							5m rutter used
-11	HD 223617	23 50	+02 07				3 /				/1.2		8.0	G9III							wrong star — NO SPECTRUM TAKEN
-11	HD 216956	22 56	+29 44		09:38	09:38.5	30s / wk	01:27.5W			/1.2		6.2	A3V							5m rutter used
1403-1	HR 7790	20 24.4	-56 47		10:14	10:15	8s / wk	>4h W			/1.2		1.9	G2.5V							5m rutter used
-3	HR 8708	22 03.3	-26 56		10:33	10:37	3m45s / wk	03.20W			/1.2		5.7	G4IVn	NeA	3s					
1404-1	SLS 4187	17 28.5	-33 41	JULY 14-15	5:39	5:40	1m / ✓	03:00W	2"-3"	3.52	100/1.2	112/7.0	6.7	B4V:	NeA	3s		IIaD	D-19 38-4m	F-2 GRAD CROWE	T=10°C H=38%
-3	FL 561	17 28.5	-33 41		5:46	6:16	30m / ✓	>3.35W			/0.8		10.7	B3							
1405-1	FL 569	17 29.9	-34 01		6 37	6 57	20 / wk	~4h W	2"-3"		/0.8		10.1	B8							
-3	SLS 4203	17 30.8	-33 19		7.05	7 15	10 / wk	>4 W			/0.8		9.5	OB							
-5	FL 453	17 30.2	-33 30		7 19	7 32	13 / "	"			/0.8		9.6	A2:II:							
-7	SLS 4218	17 32.7	-33 37		7:35	7:50	15 / "	"			/0.8		9.8	OB-h							
-9	FL 555	17 32.4	-33 40		7:52	8:08	16 / "	5 25W	2"-3"		/0.8		9.9	B5							
-11	SLS 4201	17 30.6	-31 31		8:12	8:20	8 / ✓	5 40W	2"-4"		/0.8		8.6	OB							
1406-1	HD 220657	23h 24.2m	+23° 17'		8.48	8.48	20s / wk	00:145W			/1.2		4.5	F8III							CIRRUS
-3	HD 219615	23 15.9	+03 09		8:55	8:55	20s / ✓	00:29W			/1.2		4.6	K0III-6							"
-5	HD 216956	22 56	+29 44		9:02	9.03.5	1½m / wk	00.57W			/1.2		1.2	A3V							" 5m rutter used
-7	HD 218356	23 06	25 21		9:13	9.13	26s / wk	00 55W			/1.2		6.1	G8I6							"
-9	HD 204075	21 25	-22 32		9:40	9.40	26s / wk	03:05W			/1.2		4.7	G4I6							"
-11	HR 8708	22 03	-26 56		9:52	9.52	20s / wk	02.39W			/1.2		5.7	G4IVn							"

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1977	DEC. 1977	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
1407-1	FL 345 ② NGC 6383-1148	17h 32.8m	-32° 09′	JULY 15-16	23:48	24:00	12m /	2h 42m E	2-3″v	3.52	100 / 0.4	112 Å 7.0	9.2	OB:	NeA	3S		IIaD	D-19	FITZGERALD T = 12° ; CIRRUS	
-3	FL 344 SLS 4225	17h 33.2	-32° 34′		00:03 00:07	00:04 00:08	30S/76S	2h 34m E	2″-4″v				5-7	07V +07V					28-4m	CREWE	H = 34½
-5 -7	FL 347																				
1408-1		17 33.2	-32 15		00:28.5	00:58	30m / v	1 35 E	2"-4"v				10:3	B5							
-3	FL 340 NGC 6383-88	17 32.6	-32 25		01:03	01 48	44m / v	0 54 E	2"-3"				10.9	B2V						T=12 H=35	C=2
-5	FL 341	17 32.9	-32 30		01.51	01:58	7m / v	0.44 E	"				8.7v	B1							
-7	SLS 4246	17 34.0	-34 37		02:04.5	02:50	45m / v	0.08W			/0.6		>11.0	OB						T=3	(Obs. in "Lunar")
-9	SLS 4242	17 34.1	-34 03		02:55	03:45	50/ wk	1:04W			/0.8		11.2	OB+							
-11	FL 651	17 31.8	-34 25		01 49	04:01	12/ v	1:20W					9.4	B5.							
1409-1	SLS 4239	17 34.0	-33 55		04:35	05:25	50/ wk	2 44W					11 2	OB+ v							
-3	SLS 4254	17 34.6	-33 57		05:39	05:43	18/ wk	3'07W					10.1	OB+							
-5	SLS 4252	17 34.6	-33 53		05.50	06:50	60/ wk	4:09W			/0.6		11.8	OB						T=14 H=35	
-7	FL 1545	17 34.3	-33 54		06 53	06:59	5m / wk	4:18W			/0.8		8.6	B5:							
-9	FL 1543	17			07:02	07:14	8m / wk	4133W					9.2	OB+							
-11	SLS 4231	17			07 17	07 46	25m / wk	5:06W					10:3	OB+(k) v							
1410-1	SLS 4314	17 37.9	-33 38		08:03	08 15	12m / v wk	5:31W					9.2	OB+ke vv							
-3	FL 536	17 37.9	-33 35		08:17	08:25	7m / v wk	5:40W					8.6		NeA	3S					
1411-1	HD219615	23h 15.9m	+03° 09′		08:47	08:50	65S/ ✓	00:28 W			/1.2		4.6	K0 III b							
-3	HD 220657	23h 24.2m	23° 17′		08:58	08:59	60S/ wk	00:28 W			/1.2		4.5	F8 III							
-5	HD 206778	21h 43.1m	09° 46′		09:05	09:06	75S/ ✓	02:17 W			/1.2		4.0	K2 II b							
-7	HD 1013	00h 13.4m	20° 05′		09:12.5	09:14	110S/ wk	00:06 W			/1.2		6.4	M2 III							
-9	HD 215648	22h 45.6m	12° 05′		09:22	09:23	70S/ wk	01.32 W			/1.2		4.7	F8 I-II							
-11	HD 223617	23h 50.0	02° 07′		09.30.5	09:37.5	7m/ wk	00.41 W			/1.2		8.0	G9 III (Fe-2)							
1412-1	HR 8403	22 03.3	-26 56		09:54	09.55	75S/	02:46 W			/1.2		5.7	B4 IV n							
-3	HR 338	(2000) 01h 08.4m	(2000) -55° 15′		10:01.5	10:02	40S/	00.12 E			/1.2		3.8	B7 V							
-5	HR 472	(1977) 01h 36.9m	(1977) -57° 22′		10:08.5	10:11	150S/	00:33 E			/1.2		0.3	B3 V p						5 m wide wand	
-9	HR 1258	04h 02.4m	-20° 12′		10:20 ~~10:17.3~~	10:22 ~~10:19.3~~	130S/	02:48 E			/1.2		6.3	B2.5 V							
-11	HR 1443	04h 30.1	-45° 00′		10:28.5	10:29.5	60S/	03:08 E			/1.2		49	B2 IV-V							
1413-1	SLS 4231	17 33.5	-33 40.0	JULY 16-17	23:11.5	23.41.5	30m/ ✓	02.58 E	2"-4"	3.52	100/1.2	112/7.0	10:3	OB+(k) v					FITZGERALD MAX	STRAIGHT T=17 >NY H=30	
-3	4237	17 33.9	-33 43.4		23 46	23 56	10m/ ✓		2"-4"		1.2		9.2	OB+	NeA	3S					

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 173

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1977	DEC. 1977	1977 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
1444-1	SLS 4254	17 34.6	-33 32.9	JULY 17	00.11	00 21	10m / 5m/hr	2 18 E	3"-4"	3 52	100 / 0.8	112/7.0	10.1	OB+				IIa D	D-19 68s -4m	FITZGERALD MAX-CRUSE	exp. too short
-3	SLS 4311	17 37.5	-35 30		00:28	00:52	24/ clr	1:49 E			/0.8		10.2	OB							flare transparency!)
-5	SLS 4267	17 34.9	-34 03		00:59	01:39	~~50~~ 40m/clr	1:02 E			/0.8		10.9	OBh							
1415-1	SLS 4314	17 37.9	-33 38		01:59	02:11	12m/ clr	0:32 E			/0.8		9.2	OB+Em							
-3	FL 536	17 37.8	-33 35		02:14	02:23	8m/ "	0:19 E			/0.8		8.6	OB?							
-5	SLS 4332	17 40.4	-33 30.2		02:28	02:30.5	130s/ "	0:15 E			/0.8		7.0	F8I							
-7	SLS 4304	17 36.6	-33 41.7		02 38	03:38	~~60~~m/ "	0:57 W			/0.8		11.0	OB+	NeA	3s					
1416-1	SLS 4335	17 ~~38.7~~ 40.7	-34 08		04 09	04:29	20m/ wk	1:45 W			/0.8		9.6	OB+							
(-3	FL 633	17 40.8	-34 20		04 32	04 38	5m/ 1 min	1:55 W			/0.8			BS							DBL EXP
(-3	SLS 4356	17 43.7	-35 ~~25~~ 26.0		04 50	05 18	~~25~~ 1 min	2:31 W	4"		/0.4		10.0	OB-							
-5	SLS 4358	17 43.4	-35 25		05.18	06:10	40m/clr	3:24 W	4"-6"		/0.8		10.0	OB-							SKY V PERT MIN, INTAR E / LOD.
-7	SLS 4346	17 42.1	-35 32		06:13	06:31	16m/ 1 min	3:42 W	"		/0.8		8.8	OB-							"
-9	FL 633	17 40.8	-34 20		06:33	06:44	10m/ min	3. 55W			/0.8		~8.5	BS							T=16 H=23
1417-1	SLS 4182	17 27.7	-31 30	JULY 18	02:30:5	02:33 5	3m/ ✓	0. 10W	3"-4"	3.52	100 / 0 8	112/7.0	7.3	OBce (B0V)							
-3	SLS 4185	17 28.0	-31 44		02.38	03:09	30m/ ✓	0:41 W	2"		/0.8		10.2	OB							T=15: H=27%
1418-5	SLS 4209	17 31.4	-33 02		03:12	03:13	80s / wk				/0.8		6 9	OB							
-7	"	"	"		03.15	03:18	100s/ ✓	0 46W	2"		/0.8		6 9	OB	NeA	3s					
1418-1	FL 457	17 31.5	-33 02		03:31	03:45	14m/ ✓	1:13 W			/0.8		9 4	B7							
-3	SLS 4207	17 31.6	-33 23		03:48	04:48	60m/ wk	2:17 W			/0.6		10 9	OB+							CIRRUS!)
-5	FL 451	17 30.2	-32 53		04:52	05:06	12m/ wk	2 35W			/0.8		9.0	OB?	NeA	3'					
1419-1	SLS 4380	17 45.2	-32 38		05:23	06.26	60m/ wk	3 47W			/0.6		10.3	OB+h							CIRRUS?
-3	SLS 4408	17 47.1	-34 04		06:33	06.47	12m/ wk	4.02W			/0.8		8.6	OB-							
	SLS 4181	17 27.5	-32 58		06 54	07 08	14/ ✓	4 23W			/0.6		8-9	OB-							CLEAR
1421-1	SLS 4254	17 34.6	-33 52.9	JULY 19	00 26	00 56	20m/ wk	1. 36E	3"	3 52	100 / 0.8	112/7.0	10.1	OB+	~~NeA~~	~~3s~~		IIaD	D-M 68s +m	FITZGERALD MAX CRUSE	T=13°, H=22%
-3	SLS 4332	17 40.4	-33 30 2		01 00	01 02	130s/ wk						7.0	F8I	NoA	3"					
-5	"	"	"		01:05	04 30	9	1:24 E					"	"	NoA	6s					
1421-1	SLS 4314	17 37.7	-33 38		01 26	01 46	18m/ wk	0 50E	3-4"				7.2	OB+Em							
-3	FL 0532	17 36. 1	-33 41		01:50	02:04	30 wk	0:28 E	"				7 8	A2II:							
5-9	SLS 4314				02:45	02:56	10,5														replaced WIND batteries 2200h
					02:56	03:01									NoA	3s, 6s					take turns ?)!

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 174

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1977	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL/CORR	H.A. END	SEE/TRANS	CAM. FOCUS	SLIT	GRATING/TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1422-4	SLS 4380	17 45.2	-32 18.4	19 JULY	03:15				3"	3.32	100/	112/7.0						IIa-D	D19	FITZGERALD	Tols Tols 9/1
-3	4403	17 47.2	-37 04.2		04:18	04.22.5	1m Hel														
-2					04:24	04:32	8m light	1.49W							NeA	2s 5s					
1423 -4	H1-36	17 48.6	-37 06	28-29 JULY	04 32	05 12	40m/ruined	3h09mW	3-4"	3.32	220/0.6	112/7.0		LOST PLATE BECAUSE IT STUCK TO PHOSPHOR & DIDN'T ADVANCE	NeA	2s		IIa-D	4-5	Crow	T=7°C WIND H=54% =0-20
-1	(for Jeffers)				05 21	06 01	40m/ruined	>3h30mW													PLATE STUCK TO PHOSPHOR — DIDN'T ADV.
1424-4	H1-36				07 02	07 42	40m/fine	>3h30mW													
-1	(for Jeffers)				07 44	08 24	40m/fine	>>3h30mW													
1425 -4	H1-36	17 48.6	-37 06	30-31 JULY	23:37	00 22	45m/fine	1h35mE	4"	3.52	220/0.6	112/8.36			NeA	2s		IIa-D	A-5	Crow	T=
-1	(for Jeffers)				00 35	01 35	60m/fine some moonlight	0h20mE							COMPARISON OVEREXPOSED!						
1426 -4	H1-36				03 54	04 41	47m/ruined	2h46mW	PLATE STUCK TO PHOSPHOR & DIDN'T ADVANCE → 3 hours WASTED — THIS PLATE HOLDER IS NOT USED!!						NeA	1s					H=
-2	(for Jeffers)				04 51	05 51	60m/ruined	>3h30mW													
+1					05 56	06 41	45m/ruined	>3h30mW													
1427 -4	H1-36	17 48.6	-37 06	31 JULY 1 AUG.	00 57	01 42	45m/good	0h12mE	4"	3.52	220/0.6	112/8.36			NeA	2s		IIa-D	A-5		T=
-1	(for Jeffers)				01 57	02 53	62m/good	1h00mW	STUCK TO PHOSPHOR					SPECTRA ARE GOOD, BUT ORIENTATION SET WRONG: UP AND DOWN IN A TIC-TAC-TOE PATTERN!!							
+2					03 16	04 01	45m/good	2h08mW	STUCK TO PHOSPHOR												
1428 -4	H1-36				05 24	06 09	45m/good	>3h30mW	COMPARISON SLIGHTLY OVEREXPOSED												
-1	(for Jeffers)				06 21	07 21	60m/good	>>3h30mW	4-6"						NeA	2s 1s					WIND = 0-5
1429	LS-3°7	18 42.2	-3 39	23/24 AUG	0h00m	1 15	75m/V	0h2mE	1"/clear	3.28	50/0.6	120/7.0	11.6	OB(r)	NoA	3s	—	IIa-D	moist sulfite 15m	Tnr	IT., T=?, H=74
	LS-3°8	18 42.2	-3 48	"	1 18	4 03	165m/V	2h46mW	1"/clear	"	"	"	12.3	OBh	"	"	—	"	"	"	H=70
	LS-4°15	18 39.9	-4 24	"	4 06	5 17	71m/V	4h02mW	"	"	"	"	11.4	OB+r	"	"	—	"	"	"	H=62, T=7°C
	LS-4°13	18 39.7	-4 07	"	5 20	5 40	20m/V	4h26mW	"	"	"	"	9.8:	B9 Ib	"	"	—	"	"	"	WIND 0 mph
1430	LS-3°5?	18 40.8	-3 55	24/25 AUG	23h38m	2 33	175m/mist	1 21W	1"/clear	3.28	50/0.6	120/7.0	12.7	OB	NeA	3s	—	IIa-D	moist sulfite 15m	Tnr	Wind 10-15, T=14 H=44. * Wrong star, but OB nebs there!!
	LS-4°11	18 38.3	-4 37	"	2 35	4 14	99m/over	3 05W	"	"	"	"	11.6	OBA	"	"	—	"	"	"	
	LS-4°16	18 40.0	-4 22	"	4 17	5 53	96m/V	4 43W	"	"	"	"	11.2	OB	"	"	—	"	"	"	
1431	LS-4°12	18 38.8	-4 37	25/26 AUG	23 17	2 08	171m/V	1 02W	1"/clear	3.28	50/0.6	120/7.0	12.3	OB-	NeA	3s	—	IIa-D	moist sulfite 15m	Tnr	WIND 10-15 mph T=15°C, H=40%
	LS-4°22	18 45.1	-4 53	"	2 10	5 42	212m/V	4 30W	"	"	"	"	12.4	OB	"	"	—	"	"	"	
1432	LS-4°19	18 44.0	-4 49	26/27 AUG	23 17	23 55	38m/V	1 13E	1"/clear	3.25	50/0.6	120/7.0	11.0	OB	NeA	3s	—	IIa-D	moist sulfite 15m	Tnr	W.S-10, H=36
	LS-4°11	18 38.3	-4 37	"	23 57	0 56	59m/V	0 05E	"	"	"	"	11.6	OBh	"	"	—	"	"	"	T=14°C
	LS-4°16	18 40.0	-4 22	"	0 59	1 43	44m/mist	0 40W	"	"	"	"	11.2	OB	"	"	—	"	"	"	
	LS-4°18	18 43.9	-4 48	"	1 46	4 20	154m/V	3 13W	"	"	"	"	12.5	OB	"	"	—	"	"	"	

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T. 1977	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1432	LS-4°15	$18^h 39^m.9$	$-4° 24'$	27 AUG	4:23	5:56	93^m/✓	$4^h 54^m$W	1"/clear	3.25	50μ/0.6	120/7.0	11.4	OB+r	NeA	3^s	—	IIa-D	metol sulfite 15^m	Tnr	
1433	HD 148688	16 30.1	−41 46	27/28 AUG	23:17	23:26	$1\frac{1}{2}^m, 3^m, 4\frac{1}{2}^m$	0 37W	1"/clear	3.36	50μ/0.6	120/7.0	5.64	B1Ia	NeA	30^s	—	IIa-0	metol sulfite 15^m	Tnr	
	ζ¹Sco	16 52.4	−42 20	"	23:30	23:36	$1^m, 2^m, 3^m$	0 24W	"	"	"	"	5.24	B1.5Ia+	"	"	—	"	"	"	
	ν Aql	19 25.7	+0 17	"	23:43	23:49	$1^m, 2^m, 3^m$	1 56E	"	"	"	"	5.23	F2Ib	"	"	—	"	"	"	
1434	HD173438	18 44.2	−4 38	"	0:04	1:12	68^m/✓	0 08W	1"/clear	"	"	"	9.03	B0.5Ia	NeA	30^s	—	IIa-0	"	Tnr	=LS −4°21
	LS-4°13	18 39.7	−4 07	"	1:15	3:45	150^m/✓	2 46W	"	"	"	"	9.8	A0Ib	"	"	—	"	"	"	T=13, H=49, W=5
1435	89 Her	17 54.5	+26 03	29/30 AUG	23:50	0:08	$3^m, 5^m, 7^m$	0 02W	1½"/clear	3.36	50μ/0.6	120/7.0	5.82	F2Ia	NeA	30^s	—	IIa-0	metol sulfite 15^m	Tnr	wrong star!
	δ Aql	19 24.3	+3 04	"	0:20	0:23	$11^s, 22^s, 33^s$	1 13E	"	"	"	"	3.68	F0 IV	"	"	—	"	"	"	
	41 Cyg	20 28.5	+30 17	"	0:41	0:46	$39^s, 65^s, 91^s$	1 54E	"	"	"	"	4.43	F5 II	"	"	—	"	"	"	
1436	LS+3°19	19 32.5	+3 43	29/30 AUG	1:32	1:44	11^m/✓	0 00W	1"/clear	3.36	50μ/0.6	120/7.0	7.13	OB	NeA	30^s	—	IIa-0	metol sulfite 15^m	Tnr	
	LS+4°12	19 41.4	+4 54	"	3:51	4:17	26^m/✓	2 25W	"	"	"	"	7.73	OB	"	"	—	"	"	"	
1437	LS −4°19	18 44.0	−4 49	31 AUG 1 SEP	0:01	0:31	30^m/✓	0 16W	1"/clear	3.30	50μ/0.6	120/7.0	10.8	OB	NeA	3^s	—	IIa-D	metol sulfite 15^m	Tnr/Crw	
	LS −4°12	18 38.8	−4 37	"	0:38	2:38	120^m/✓	1 56W	"	"	"	"	12.3	OB	"	"	—	"	"	Tnr/Crw	
	LS −4°22	18 45.1	−4 53	"	2:43	5:28	165^m/✓	4 40W	"	"	"	"	12.4	OB	"	"	—	"	"	"	
1438	LS −4°17	18 40.1	−4 04	1/2 SEPT	23:54	2:24	150^m/✓	1 46W	1"/clear	3.30	50μ/0.6	120/7.0	12.6	OB	NeA	3^s	—	IIa-D	metol sulfite 15^m	Tnr/Crw	T=17, H=21
	LS+0°21	20 30.1	+1 01	"	2:34	4:24	110^m/✓	1 56W	"	"	"	"	12.1	OB	"	"	—	"	"	"	T=17, H=18
	LS −4°35	20 25.4	−4 06	"	4:31	7:01	150^m/✓	4 37W	"	"	"	"	12.2	OB	"	"	—	"	"	"	T=17, H=17
1439	RY Mic	20 56.9	−40 22	3/4 SEPT	5:58	7:58	120^m/✓	>3 30W	2"/clear	3-30	100μ/0.6	120/7.0	~12	MIRA VARIABLE	NeA	3^s	—	IIa-D	metal sulfite 15^m	Crw	T=15°, H=27%
	R For	02 28.2	−26 12	"	9:23	10:23	60^m/WEAK	2 05W	"	"	"	"	~11	MIRA Ne	"	"	"	"	"	"	T=14°, H=27%
1440	RS Sco	16 54.0	−45 04	5/6 SEPT	01:43	01:54	$1^m, 2^m, 4^m$	3 16W	2"/clear	3-30	100μ/0.6	120/7.0	7-5 (V)	MIRA MSe-Se	NeA	3^s	—	IIa-D	metal sulfite 15^m	Crw McA	T=16°, H=31%
	RR Sco	16 55.0	−30 31	"	02:15	02:28	$1\frac{1}{2}^m, 3^m, 6^m$	3 50W	"	"	"	"	8.0	MIRA MSe-Se	"	"	—	"	"	"	"
1441	T Cru	22 24.4	−37 41	"	06:34	07:07	30^m/WEAK	3 00W	"	"	"	"	11.0	MIRA Me	"	"	—	"	"	"	T=15°, H=30%
	T Col	05 18.5	−33 44	"	07:34	08:19	45^m/✓	2 42E	"	"	"	"	11-5	MIRA M4e-M6	"	"	—	"	"	"	
1442	RT Sco	16 55.0	−26 11	10/11 OCT	01:21	01:35	$2^m, 3^m, 5^m$	$5^h 15^m$W	1"/clear	3.30	100μ/0.6	120/7.0	6.5 (V)	MIRA M3e-4e	Ne	2^s	—	IIa-D	metal sulfite 15^m	Crw	T=1[illegible] H=[illegible]
	RS Sco	16 54.0	−45 04	"	01:51	02:01	$1^m, 2^m, 4^m$	$5^h 42^m$W	"	"	"	"	7.0 (V)	MIRA M3e-5e	"	"	—	"	"	"	
1443	T Cru	22 24.4	−37 41	"	03 36	04:43	60^m/✓	$2^h 55^m$W	"	"	"	"	9.5	MIRA Me	"	"	—	"	"	"	T=[illegible]
	RY Mic	20 56.9	−40 22	"	05.19	06:32	70^m/WEAK	$6^h 11^m$W	"	"	"	"	~12	MIRA VARIABLE	"	"	—	"	"	"	[illegible]
	T Col	05 18.5	−33 44	"	07.40	08 to	60^m/SL WEAK	$0^h 02^m$E	"	"	"	"	~11.5	MIRA M4e-M6	"	"	—	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 176

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE UT 1977	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1444	R Fcz	0h 28.2m	-26° 12'	OCT 11-12	07:00	05:30	90m/TOO WEAK	0h 19m E	1"/hazy	3 30	100/0.6	112/70	11.5	MIRA Ne	N.A	2s	—	II-D			T 2°, H 70.2
1445	R Fcz	"	"	"	07:05	09:15	130m/STILL TOO WEAK	3h 28m W	1"/clear	"	"	"	"	"	"	"	—	"	"	"	(CIRRUS)
1446	Rx Mic	20h 52.9m	-27° 47'	OCT 12-13	00:52	04:52	240m/V	4h 42m W	1"/clear	3 30	100/0.6	112/70	13	MIRA —	N.A	3s	—	II-D		Crw	T 13°, H 51.2
	RS Phe	1h 13.0m	-56° 55'	"	05 44	06:54	70m/V	2h 25m W	"	"	"	"	11.5	MIRA M2e			—	"	"	"	T 12°, H =
	S Hor	2h 24.3m	-59 48'	"	07:30	09 15	105m/V RIGHT? STAR?	3h 35m W	"	"	"	"	12	MIRA M3e			—	"	"	"	T 11°, H 34.0
1447	RR Sco	16h 55.0m	-30° 32'	OCT 13-14	00:22	00 24	2m/V	4h 16m W	2, clear	3 30	100/.6	112/70	6.5 V=	MIRA M5e-M8e	N.A	3s	—	II-D		Crw	T 10 H 70.0
	RS Sco	16h 54.0m	-45° 06'	"	00:34	00:38	4m/V	4h 30m W	"	"	"	"	7.0 V=	MIRA M5e-M8e			—				
	RY Mic	20h 51.0m	-46° 24'	"	01:07	03 22	120m/SL WEAK	3h 13m W	"	"	"	"	12	MIRA —			—				T=8, H 70.0
	T Gru	22h 24.4m	-37° 45'	"	03 47	04:34	45m/V	2h 55m W	3/clear	"	"	"	9.5	MIRA M6e			—	"	"	"	T 8, H 47.2
	S Hor	2h 24.4m	-59° 42'	"	00 10	08 45	150m/TOO WEAK RIGHT STAR?	3h 09m W	"	"	"	"	<12	MIRA M6e			—				T 5, H 33.0
1448	Rx Mic	20h 53.1m	-27° 49'	OCT 14-15	00:38	05:41	300m/V	5h 37m W	3"/clear	3 30	100/0.6	112/70	13	MIRA —	N.A	3s	—	II-D		Crw	T 7°, H 75.0
	RS Phe	1h 13.2m	-56° 55'	"	06 00	07:10	70m/V	2h 50m W	"	"	"	"	11.5	MIRA M2e			—				T 2, H 70.0
	T Col	5h 18.6m	-33° 45'	"	07:32	08:47	75m/SL WEAK	0h 26m W	"	"	"	"	11.5	MIRA M4e-M6e			—				T=8, H 35.0
1449	RR Sco	16h 55.6m	-30° 32'	OCT 15-16	00:55	01:07	2m, 3m, 5m	5h 57m W	2"/light cirrus	3 50	100/0.6	112/8.30	6.5 V=	MIRA M5e-M8e	N.A	2s	—	II-D		Crw	T 11°, H 75.0
	RS Sco	16h 54.0m	-45° 06'		01:13	01 24	1m, 2m, 5m	5h 25m W					7.0 V=	MIRA M5e-M8e			—				
1450	RY Mic	20h 37.0m	-46° 24'		02:39	05 46	180m/WEAK	5h 45m W	1"/clear				12	MIRA —			—				T 7°, H 27.0
	T Gru	22h 24.4m	-37° 45'	"	05.54	06 54	60m/V	5h 25m W	"	"	"	"	9.5	MIRA M6e			—	"	"	"	T=10°, H = 48.0
	RS Phe	1h 13.0m	-56° 55'	"	07:05	08 39	90m/SL WEAK	4h 23m W	"	"	"	"	11.5	MIRA M2e			—				T 1°, H = 70.0
1451	RR Sco	16h 55.0m	-30° 32'	OCT 16-17	00:33	00:38	5m/LOST	4h 42m W	1"/clear	3.50	100/0.6	112/8.30	6.5 V=	MIRA M5e-M8e	N.A	2s	—	II-D		Crw	T —, H 75.0
	RS Sco	16h 54.0m	-45° 06'	"	00:44	00:54	10m/LOST	4h 58m W	"				7.0 V=	MIRA M5e-M8e			—				
	T Gru	22h 24.4m	-37° 45'	"	01:05	02 46	100m/LOST	4h 20m W	"	"	"	"	9.5	MIRA M6e			—				T —, H 47.2
	RS Phe	1h 13.0m	-56° 55'	"	03:02	05 08	125m/LOST	0h 58m W	<1/clear				11.5	MIRA M2e			—				
	T Col	5h 18.6m	-33 44		05:38	08 03	150m/LOST	0h 12m E					11.5	MIRA M4e-M6e			—				T 13, H = 32.0
1452	RR Sco	16h 55.2m	-30° 32'	OCT 17-18	01:05	1:10	5m/V	5h 19m W	<1/clear	3.50	100/0.6	112/8.30	6.5 V=	MIRA M5e-M8e	N.A	2s	—	II-D		Crw	T —, H 75.0
	RS Sco	16h 54.0m	-45° 06'		01:16	01:26	10m/V	5h 35m W					7.0 V=	MIRA M5e-M8e			—				
	T Gru	22h 24.4m	-37° 45'	"	01.41	03:22	100m/SL STRONG	2h 01 W					9.5	MIRA M6e			—				T 15, H 36.0
	RS Phe	1h 13.1m	-56 55'	"	03 30	06:06	150m/V	1h 55m W	1, clear				11.5	MIRA M2e			—				"
	T Col	5h 18.2m	-33 44'		06 25	01:00	150m/V	0 45 W					11.5	MIRA M4e-M6e			—				"

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1977	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. V	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1453	α Scr	18h28m0	-26°23′	OCT 18-19	00:20	00:20	2 SET TRAILS / sl ω	4h54m W	1″/clear	3.30	100/0.6	112/h.0	1.08	M1.5 Iab	NeA	3s	—	IIa-D	METOL SULFITE 15m	Crw	T=18°, H=26%
	3 Aqr	20h46m.5	-5°07′	"	00:37	00:37	15 SET TRAILS / sl ω	0h58m W	"	"	"	"	4.42	M3III	"		—				
	λ¹ Aqr	22h51m.4	-7°41′	"	00:44	00:44	15 SET TRAILS / V	1h00m E	"	"	"	"	3.76	M2.5IIIa	"		—				
	χ Aqr	23h13m.2	-6°09′	"	00:50	00:50	15 SET TRAILS / sl ω	1h17m E	"	"	"	"	4.22	M1.5III	"		—				
	30 Psc	00h00m.8	-6°07′	"	00:56	00:56	15 SET TRAILS / ω	1h55m E	"	"	"	"	4.41	M3III	"		—				
	BS 46	00h13.3	-7°54′	"	01:05	01:05	2 CODE TRAILS / V	2h00m E	"	"	"	"	5.36	M3III	"		—				
	EU Del	20h36m.7	18°11′	"	01:16	01:17	60s / V	1h48m E	"	"	"	"	6.3V	M6III	"		—				
	2 Peg	21h28m.4	23°32′	"	01:23	01:24	15 SET TRAILS / sl ω	1h01m E	"	"	"	"	4.54	M1III	"		—				
1454	EU Del	20h36m.7	18°11′	"	02:45	02:46	60s / V	3h06m W	"	"	"	"	6.3V	M6III	"	2s	—				T = 18°, H = 26%
	3 Aqr	20h46.5m	-5°07′	"	02:54	02:54	15s / V	2h56m W	"	"	"	"	4.42	M3III	"		—				
	2 Peg	21h28.4m	23°32′	"	03.04	03.04	15s / V	2h42m W	"	"	"	"	4.54	M1III	"		—				
	λ¹ Aqr	22h51.4m	-7°41′	"	03.09	03.10	15 SET TRAILS / V	1h25m W	"	"	"	"	3.76	M2.5IIIa	"		—				
	χ Aqr	23h13.2m	-6°09′	"	03.15	03:16	30s / strag	1h10m W	"	"	"	"	4.22	M1.5III	"		—				
	30 Psc	00h00.3m	-6°07′	"	03:20	03.21	15s / V	0h26m W	"	"	"	"	4.41	M3III	"		—				
	BS 46	00h13.3	-7°54	"	03.26	03.26	30s / V	0h20m W	"	"	"	"	5.36	M3III	"		—				
	55 Peg	23h05m.4	9°17	"	03:35	03.35	15s / V STREAK	1h35m W	"	"	"	"	4.51	M1IIIab	"		—				
1455	χ Aqr	23h13.2m	-6°09′	"	04:50	04:51	15s / V	2h45m W	"	"	"	"	4.22	M1.5III	"		—				T = 11°
	χ Peg	00h13.4m	26°04′	"	04.57	04:58	30s / V	1h52m W	"	"	"	"	4.10	M2+III	"		—				
	55 Peg	23h05.4m	9°17′	"	05.03	05.03	15s / V	3h05m W	"	"	"	"	4.51	M1IIIab	"		—				
	β And	01h08.4m	35°30′	"	05:10	05.11	7 SET TRAILS / JET CLEAR	1h10m W	"	"	"	"	2.05	M0IIIa	"		—				
	45 Ret Ari	02h54.5m	18°15′	"	05:18	05.19	45s / V	0h30m E	"	"	"	"	5.9V	M0III	"		—				
	α Cet	03h01m.1	3°57′	"	05:27	05.27	7 SET TRAILS / V	0h25m E	"	"	"	"	2.53	M1.5III	"		—				
	γ Eri	03h57.0	-13°36′	"	05.34	05:35	10 SET TRAILS / V	1h15m E	"	"	"	"	3.17	M1III	"		—				
	γ Peg	23h04m.6	24°59′	"	05.42	05:43	30s / V	2h54m W	"	"	"	"	4.66	M3III	"		—				
	119 Tau	5h30m.7	18°34′	"	05:52	05.53	30s / V	2h30m E	"	"	"	"	4.73	M2Iab-Ib	"		—				
1456	R Dor	4h36m.9	-62°10′	"	07:09	07 10	45s / V	0h20m E	"	"	"	"	5.5	M8e	"		—				T = 8°, H = 6%
	π² Dor	6h12.0m	-65°33′	"	07:16	07:17	30s / V	1h48m E	"	"	"	"	5.0	M2.5III	"		—				
	μ Gem	6h21.5m	22°36′	"	07:28	07:28	8 SET TRAILS / sl ω	1h45m E	"	"	"	"	2.97	M3IIIab	"		—				
	ν Gem	7h34.7m	26°59′	"	07:35	07:36	15s / V	2h52m E	"	"	"	"	4.06	M0III	"		—				
	6 Gem	6h10.7m	22°58′	"	07:42	07:44	60s / V	1h20m E	"	"	"	"	6.11	M2Ia	"		—				T = 8°, H = 2%

NUMBER LC	OBJECT	R A	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
																					Wind 5mph SW T=57°F H=55%
1457	α Scl	00 57.4	-29° 28'	15/16	0100	0116	1½,1,2,4^m	0^h 18^m W	2-3" Haze	2.83	50μ/1.2	67/4.45	4.14	B8p.	No A	60^s	NONE	IIa-O	Metal Scrafolc 67°F 15 mi		
	γ PEG	00 11.9	+15 03	DEC 1977	0124	0131	1½,1,2,4^m	2^h 16^m W	"				2.60	B2 IV							
	Ψ³ Psc	01 08.5	+19 13		0136	0206	30^m 40	2^h 55^m W	"				6.2	G0 III							
1458	HR 856	02 51.8	+16 23	"	0308	0358	50^m 60	2^h 4^m W	"	"	"	"	6.8	FS III	"	"	"	"	"	"	
	μ LEP	05 11.6	-16 14		0537	0537	1^m ✓	1^h 24^m W	2" 1.5" hazy				3.22	B1p							
	22 ORI	05 20.2	-0 25		0544	0548	3^m5 ✓	1^h 24^m W					4.6	B2e							
	25 ORI	05 23.2	+1 49		0552	0557	3^m5 ✓	1^h 27^m W	5"				4.7	B1e							
	ω ORI	05 37.6	+4 06		0557	0600	2^m ✓	1^h 19^m W	"				4.4	B3e							
	χ LEP	05 43.2	-22 27		0604	0606	2^m ✓	1^h 19^m W					4.1	F6 V							
	σ LEP	05 56.1	-20.3		0609	06.14	5^m ✓	1 20 W					4.8	G8							
	η LEP	05 55.0	-14 10		0617	0619	2^m ✓	1 21 W					4.0	F0							
	θ LEP	06 04.8	-14 56		0621	0624	4^m /	1 17 W					4.7	A1							
	65 MON	06 13.4	-6 16		0628	0639	10^m ✓	1 21 W					5.3	K3							
	ε MON B	06 22.2	+04 30		0641	0712	31^m 40	1 46 W	1"2				6.8	F4							
	β MON C	06 27.4	-07 01		0714	0724	7^m + cloud ✓		1.5 mm circular				5.5	B3e							T = 53°F Clouds to N 27°F wind NE - 12 mph
			IT ACTUALLY RAINED TODAY — IN DECEMBER! (BUT ONLY A LITTLE — IN CANADA BOLIVIA!).																		
1459	ε PHE	00 07.9	-45° 35'	16/17 DEC 1977	0128	0138	10^m ✓	2^h 31^m W	2-3" some cc.	2.85	50μ/1.2	67/4.46	4.9	K0	"	"	"	"	"		CLOUDS CLEARING
	θ CET	01 22.5	-08 20		0141	0149	6^m5 ✓	1^h 26^m W	2" clear				4.7	K0	SLIDE NOT CENTERED ON SLIT — CONTAMINATION FROM β CET						
	ξ' CET	02 11.4	+08 42		0152	0210	18^m ✓	59^m W	2-3"				5.5	G8							T = 14°C H = 50% wind 5 mph NE
	o CET	02 17.8	-03 07		0213	0239	26^m 15	1^h 21^m W	3"				5.4:	M6e							M1RA
	δ HYI	02 21.2	-68 48		0244	0248	4^m ✓	1^h 27^m W	2-3"				4.1	A2							
	μ CET	02 43.3	+9 59		0252	0300	7^m /	1 17 W	8"+?				4.6	F0							
	α CET	03 00.7	+3 58		0302	0312	10^m /	1^h 11^m W	3"				4.2	M2 III							Clouds to N and W. Thin cirrus between clouds
	ι TAU	03 23.2	+8 55		0318	0326	8^m ✓	1^h 3^m W	3" some clouds				4.5	G8 III							
	γ HYI	03 47.7	-74 20		0330	—	1^m 6^m	—	3" some clouds				4.9	M2							
1460	β HYI	00 24.2	-77 25'	17/18	2354	—	1^m 5^m		3" cloudy	2.85	"	67/4.42	3.4	G1 II-III	"	"	"	"	"		T = 12°C L 11-60% wind 30 mph NE Still cirrus
(2)	o CET	02 17.8	-03 07	DEC 1977	0229	0252	5^m	1^h 38^m W	3" some clouds				3:	M5e							
	γ HYI	04 47.7	-74 20		0257	0315	✓	0 31^m W	" "				4.9	M2							
	o² ERI	04 10.4	-00 55		0318	0325	6^m ✓	0 19 W	"				4.4	F2							
	40 ERI	04 13.9	-07 42		0327	0338	10^m ✓	24 W	2" "				5.2	K1							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1460 (CONT)	ε RET	4h 16.0	−59° 22'	17/18	0341	0355	12m / ✓	0h 43m W	2" / clear	2.85	54 / 1.2	67 / 447	5.5	K1	NEA	60'	NONE	IIa-O	IIIa-J + GG 495 + 1.5mm	✓	
	43 ERI	4 22.9	−34 05	DEC 1977	0358	0419	20m / ✓	1h 0m W	"				5.5	M1							
	71 TAU	4 24.6	+15 33		0422	0429	7m / ✓	1h 7m W	"				4.7	F0							
	α DOR	4 35.3	−55 06		0432	0434	2m / 1.5m	1h 6m W	"				3.2	A0p							
	54 ERI	4 39.1	−19 44		0438	0509	30m / ✓	1h 35m W	"				5.9	M4							
1461	2 ORI	04 49.0	+8 51	"	0532	0537	4m.5 / ✓	1 52 W	"	"	"	"	4.3	A0	"	"	"	"	"	"	"
	β DOR	05 33.4	−62 31		0540	0546	4m.5 / ✓	1h 17m W	"				4.2	F8							
	K COL	06 15.5	−35° 03'		0549	0603	12m / ✓	51m W	"				2.4	G8							
	δ VOL	07 16.9	−67 57		0607	0617	12m / ✓	4m W	5" / "				4.8	F8							
	γ PUP	06 34.8	−43 10		0621	0623	1m.5 / 1m.2	56m W	3" /				3.1	B7							
	ω CMA	07 13.8	−26 43		0626	0629	2m.5 / 2m	20m W	2" /				3.7	B3e							
	σ PUP	07 28.3	−43 14		0633	0648	15m / 12m	2h W	3" /				4.8	K5							
	f PUP	07 36.3	−34 54		0655	0654	4m / 5m	23m W	3" /				4.4	B8							
	x CMa	07 37.7	+5 18		0658	0659	12m / 15m	26m W	" /				6.8	F5							
	c PUP	07 44.2	−37 54		0703	0724	21m / ✓	44m W	3"-2" /				5.3	K5							
	P PUP	07 48.3	−46° 18'		0720	0729	2m.5 / ✓	45m W	3"-2" /				3.9	B0.5							
	HR 3314	08 27.2	−3° 48'		0732	0734	2m / ✓	16m W	2" /				3.9	A0							
1462	ζ PYX	08 42.4	−33 05	"	0746	0749	3m.5 / 2m	11m W	2-3" /				5.5	B2							
	d VEL	08 43.3	−42 32		0751	0802	10m / ✓	23m W	"				4.9	G5							
	a CAR	09 10.2	−58 51		0805	0808	2m.5 / 2m	2m W	3" /				3.3	B3							
	h CAR	9 33.6	−59 06		0810	0815	3m / ✓	14m E	"				4.1	B5							
	HR 3570 ν CAR	9 46.4	−64 56		0817	0821	3m / ✓	22m E					3.3	A7							
	η LEO	10 05.7	+16 55		0825	0828	2m.5 / ✓	33m E	3" /				3.5	A0							
	15 Sex	10 06.4	−0 13		0831	0835	4m / ✓	27m E	2" /				4.5	A0							
	γ VEL	10 13.5	−41 58		0838	0842	3m.5 / 3m	27m E	2" /				3.9	A2							
	ζ CAR	10 26.8	−58 35		0845	0848	3m / 4m	35m E	2" /				4.1	F0							
	θ CAR	10 41.9	−64 14		0850	0852	1m.3 / 1m	46m E	3" /				2.5	O9.5							
	μ VEL	10 45.5	−49 16		0854	0858	3m / ✓	44m E	3" /				3.6	G5							
1463	K FOR	02 21.4	−23° 55'	18/19	0049	0109	20m / ✓	4m E	2" /	"	"	"	5.8	G1	"	"	"	"	"	"	"
	HD 27383	04 18.6	+16 29	DEC 1977	0318	0436	4m / ✓	1h 25m W	2" /				7.4	F9							

T = 9°C ! H=57% N
T=3°C NE
15 MIN LOST TO CLOUDS

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1463 (CONT)	ε ORI	5 34.9	-01 13	18/19 DEC 1977	0440	0441	1^s 18^s	15^m W	2" Clear	2.85	50/1.2	67/447	1.5	BO	NeA	60^s	NONE	IIa-O	14-5 67 15mm		
	HD20301	3 13.9	-35 38		0448	0524	35^m 60^m	3^h 19^m W	1.5				7.0	GO							
	HD19659	3 07.9	-35 31		0526	0605	39^m 60^m	4^h 5^m W	1.5 Clear				7.1	GO							
	λ ERI	5 08.1	-08 47		0618	0621	2.5^s ✓	2 21^m W	1.5 Clear				4.1	B							
	HD33224	5 07.3	-08 41		0623	0638	14^m ✓	2 40 W					5.8	B9							
	HD33069	5 06.3	-8 41		0640	0720	40^m ✓	3 22 W	2"				6.9	B9							
	HD32468A	5 02.0	-8 41		0723	0800	37^m ✓	4 07 W	1.5 Clear				6.8	A0							SAME CONTAM FROM P.
	κ CMi	7 37.7	+5 18		0803	0804	1^s ✓		2"				6.8	F5 IV-V							
	HR3514	8 24.2	-3 43		0807	0810	3^m ✓	0^h 54^m W	2"				3.9	A0							
	ε CAR	10 41.9	-64 14		0814	0817	1.5^s 7^m	1 17 E	2"				2.5	B0							
1464	μ CAR	16 52.3	-58 42		0827	0832	5^m ✓	1^h 12^m E	2"				4.7	K0							
	μ MUS	11 46.8	-66 39		0840	0859	1^m 1^s 35^m	1 40 E	2"				5.7	K3							T: 18°C WIND ENE 7-12 kt T: 5°C WIND SSE 5-6 kt
1465	κ FOR	2 21.4	-23 55	19/20 DEC 1977	0059	0112	4^m ✓	2^m W	1.5-2" SOME CIRRUS	"	"	"	5.8	G1	"	"	"	"	"	"	
	HD27383	4 18.6	+16 29		0116	0217	60^m 80^m	51^m E	1-2" few cirrus				7.4	F9V							
	λ² FOR	2 35.9	-34 40		0229	0253	23^m ✓	1^h 29 W	1-1.5" clear here				6.5	G1							INTERRUPTED BY PATCHY CIRRUS
	HR683	2 17.9	-26 04		0257	0332	33^m ✓	2 22 W	1-1.5" "	"			7.1	G5							
	+23°649	4 13.1	+23 29		0342	0608	13^m 3^h	5^h 8^m W	1-1.5" clear w/few cirrus patches, unsteady				8.8	G3V							15mm out for ~~AD SLIT~~ 12mm under HYADES # 15
	JUP III	6 06.2	+23 03		0614	0619	5^m 10^m	1 26 W	2" clear				4.6	G2V							
	JUP	"	"		0620	0621	3^s ✓	1 28 W	"				?	"							
	ε ORI	5 34.9	-01 13		0625	0626	15^s 24^s	1^h 38^m W	"				1.5	BO							
	HR2281	6 18.2	-50 21		0631	1747	76^m Cirrus	2 42 W	1" clear				7.9	G2 IV							
	μ MUS	11 46.8	-66 39		0753	0828	33^m ✓	2^h 7^m W	1.5				5.7	K3							
	BCEN	11 49.6	-45 00		0831	0859	28^m ✓		"				5.7	K4							T: 47°F WIND 17 kt NE T: 17°C WIND 25 kt NE
1466	SKY	1 26	-39 00	20/21 DEC 1977	2353	2354	1^m ✓	0^h					?	G2V							
	β HYI	0 24.2	-77 25		0026	0028	80^s ✓	1^h 20^m W	2" cirrus				3.4	G1							
	ζ TUC	0 18.5	-65 03		0035	0040	5^m ✓	1 36 W	1.5 "				4.8	G2							
	χ ERI	1 54.8	-51 45		0044	0048	4^m ✓	9^m W	"				4.5	G5							
	HR574	1 56.0	-47 32		0051	0101	10^m ✓		" "				5.7	G5							
	HR1008	3 18.7	-43 11		0104	0111	6^m ✓	53^m E	" "				5.0	G5							
	HD20301	3 13.9	-35 38		0116	0221	60^m 80^m	24^m W	1-1.5" cirrus				7.5	G cruddy							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1466	HD19659	03 7.9	-35 31	20/21 DEC	0224	0335	63m 80m	1h 43m W	1-1.5 Cirrus	2.85	50µ/1.2	67/4.47	7.6	G0.	Neon	60s	NONE	IIa-0	M-S 67°F 15mm	8m	Lost to cirrus
(CONT)	HD20766	03 17.1	-62 42	1977	0342	0400	18m 24	2h W	1.5-2 cirrus				6.1:	G2							DAMN CIRRUS!
	HD20807	03 17.6	-62 39		0400	0418	18m	2h 18m W	2' cirrus				6.0	G2							
	HD20794	03 18.7	-43 12		0423	0430	7m		2"-1.5 cirrus				4.8	G2							
	X ORI	05 52.6	+20 16		0435	0446	10m	10m W	2" "				5.0	G0V							G2 V jump
1467	(3) JUP III	06 05.0	+23 09	"	0546	0618	10m	1h 30m W	2' cirrus	"	"	"	4.6	G2	"	"	"	"	"	"	
	JUP Trail	"	"		0618	0618	3 trails 10s		"				?	G2							
	ε ORI	05 34.9	-1 13		0621	0622	24 ✓		1.5 clear				1.5	B0							
	HD46407	06 31.6	-11 09		0626	0726	60m ✓	2h 12m W	1.5 cirrus				7.4	K0 Ga							
	HD69830	08 17.0	-12 35		0732	0807	35m ✓	1h 07m W	1.2 cirrus				7.0	G8							G2 V jump
	ε CRV	12 08.6	-22 27		0811	0815	4m ✓		1.5				4.4	K3							
	γ CRV	12 14.3	-17 23		0818	0820	30s ✓	2h 38m E	2"				2.5	B8							
	" Vir	12 18.4	-0 30		0822	0825	2m ✓	2h 30m E	"				3.9	A2							
	ζ CRV	12 28.3	-16 21		0829	0830	60s 50s	2h 42m E	"				2.9	A0							
	α MUS	12 35.4	-68 58		0836	0837	40s ✓	2 42 E	"				2.5	B3							T=15° H=45% wind S
1468	HD217987	23 3.6	-36 02	21/22 DEC	0032	0113	40m ✓s	3 28 W	1" clear	3.42	100µ/0.8	12.0 7.00	8.8	M2V	Neon	10s	NONE	IIa-0	MW 2 7mm 67°F		T=17° H=47% WIND SNE
	2 CET	0 02.2	-17 30	1977	0117	0121	20 40 80 40s	2 38 W	"				4.5	B9							
	α PSC NB	02 00.5	+2 37		0128	0131	6 12 24 24s	50m W	"				3.8	Ap+Am							
	χ PSC A	"	"		0136	0141	10 20 40 200s	59m W	"				4.3	Ap							K-TYPE SPECTRAL TRAIL ~~TRADE~~ IN DEC
	α PSC B	"	"		0144	0149	20 50 100 60s	1 08 W	"				5.3	Am							
	o CET (MIRA)	02 17.8	-03 07		0153	0158	5 10 20 40 40s	1h W	"				4:	M6e							+8
	δ Eri	03 09.9	+19 37		0203	0208	30s 1m 1m	17m W	1.5 some cirrus				5.2	K2							
1469	HD20301	03 13.9	-35 38	"	0311	0333	35s 6m 12m 9m 12	1h 38m W	1" clear	"	"	"	7.0	G0:	"	"	"	"	MW 2 66°F 7mm	"	
	HD19659	03 7.9	-35 31		0335	0357	6 30 10m	208 W	"				7.1	G6:							
	+23°649	04 12.9	+23 31		0406	0458	52m ✓	2h 05m W	2" some cirrus				8.75	G3V							Hyades #15.
	+14°728	04 36.1	+15 07		0501	0533	32 25m	2 17m W	1.5 clear				8.14	G1V							Hyades #102
	+15°651	04 33.1	+15 28		0535	0632	57m 45m	3h 19m W	"				8.6	G1V							Hyades #97
	JUP III	06 04.7	+23 08		0637	0652	1m 2 6 1.5	2 07 W	2" clear				4.6	G2V							
	HR2591	06 53.9	-42 25		0657	0727	90m ✓	2h 57m W	"				8:?	C5,2.5							
	⊙ CMi	06 52.8	-12 00		0730	0739	1 2 4 2	3h 7m W	"				5.5	K4							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1470	φ AQR	23 12.8	-06 13	22/23	0038	0108	10 20m ox!		1.5 clear	3.42	100μ / .8	120 / 2.0	5.8	M2 III	NeH	10s	NiNe II a C MW1 + 7mm UG5		N		T=18°C H=44% WIND Calm Focus varied a bit during night
	"	"	"	DEC	0112	0123	15 30 2m	3h 33m W	" "				"	"							
	45 ARI	2 54.4	+18 14	1977	0126	0209	8m 12 25 8m	38m W	" "				7.5:	M6 III							
	8 DOR	4 15.2	-51 34		0212	0216	20 40 20s 20	37m E					4.6	F5:							
	53 ERI	4 36.8	-14 22		0220	0224	1/2 1m 2 5m	41m E					5.0	K2							
	7 ERI	5 08.1	-08 47		0228	0232	1m 2m 4m 15s	1h 12m E					4.06	B9:							
1471	HD33224 A	5 07.3	-08 41	"	0245	0252	45 30 10m 80m	5m E	1" clear	"	"	"	5.77	B9:	"	"	"	"	"	"	
	" B	"	"		0257	0345	3, 6, 12, 24 80m	1m W	"				10?	B8 III:							
	HD33069	5 06.3	-08 41		0346	0401	2m 8m 35	18m W	1.5 clear				6.9:	A0?							
	HD32468 AB	5 02.0	-08 41		0413		1.5 3m 3m						6.8:	A0: + ?				Tracked in R11			Diamond 1/4 dist.
	" A	"	"		0433	0446	" 6m						6.9	A0				Tracked in Dec			
	" B	"	"		0457	0437	10m 40m	5h W	<1" clear				10:	? A2:				DECTRACK			PERFECT SEEING! OPTICS OK!
	ε CMA	06 57.4	-28 56		0720	0721	1 2 4 8 35	1h 43m W	"				1.3	B2 II							
1472	32 HYA (Dim)	09 36.5	-01 03	"	0730	0733	1m 2m 3m 30			"	"	"	4.7	A3	"	"	"	"	"	"	17 15"
	W CAR	10 13.0	-69 53		0738	0740	4 8 16 10s	1m 9m E	"				3.2	B9							
	HR 2786	7 17.8	-26 32		0744	1758	1.5 3m 8m 25	4m 3m W	"				6.2	G1 I							
	HR 3026	7 46.5	-15 55		0802	0856	30 1m 2m 20s	2h 33m W	1.5				8.1	K1 I							T=12°C H=42% WIND SNE
1473	λ Aqr	22 51.0	-7 44	23/24	0038	0046	4 2m 1.5	3h 23m W	1.5-2" clear	"	"	"	5.4	M2.5 III a L-1	"	"	"	"	"		T=17°C H=42% WIND SSW
	χ Peg	00 13.3	+20 04	DEC	0051	0114	3, 6, 12m 4	2h 27m W	" "				6.4	M2+ III							
	19 Tau	03 43.8	+24 23	1977	0123	0125	15 30 60 25	52m E	1.5 clear				4.2	B6 IV							
	17 Tau	03 43.1	+24 01		0128	0130	8 16 30 20	46m E	"				3.6	B6 III							
	20 Tau	03 44.0	+24 17		0133	0135	10 20 40 25	41m E	"				3.8	B7 III							
	13 Tau	03 44.5	+23 51		0138	0141	15 30 60 20	37m E	"				4.1	B6 IVnn							
	η Tau	03 46.0	+24°02'		0143	0144	4 8 16 12	34m E	"				2.8	B7 III							
1474	28 Tau	03 47.6	+24 07		0154	0158	3m 6m 60	22m E					5.0:	B8 shell.							
	+28°516 (Dim)	03 18.5	+28 56		0202	0216	1 2 3 6m	23m E					5.8	K4							
	5 Tau	03 29.2	+12 50		0219	0224	1m 2m 3m	21 E					5.3	K0							
	λ Tau	03 59.0	+12 24		0226	0228	8 16 30	5m E					3.6	B3							
	ε PER	03 56.1	+39 56		0232	0233	6 12 24	5m N					2.7	B0.5							
	ι Tau	04 27.2	+15 49		0238	0240	8 16 30	20m E					3.6	A7 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1474	37 Tau	04 02.9	+22° 00'	23/24 DEC 1977	0248	0255	12 4m /		1.5 / clear	342	100µ / .8	120 / 70	5.5	K0III	Neon	10^5	NeNeI I a-0		IIIaJ-2 7mm 66°F	✓J	-1d moon from full at 5h +17°
(cont) 1475	HD33224B	05 07.3	−08 41		0807	0429	82m ✓	50m W	<1" / clear				10:	G8:							
	32468B	05 02.0	−08 41		0434	0552	25, 50m ✓	2h17m W	"				9:	A2:			tracked in Dec				
	HD36046	05 27.5	−0° 3[illegible]		0636	0648	12m ✓	2h49m W	"				8	B7							
	HD36139	05 28.2	+0° 01'		0652	0655	5m ✓						6 4	A0							
	HD36117	05 28.0	+0 01		0656	0709	13m ✓		"				8.0	A0							
	36312	29.4	+0 05		0711	0727	16m ✓						8.1	B8							
	36313	29.4	+0 19		0729	0747	17m ✓						8.2	B9.							
	36176	28.5	−1 36		0749	0818	29m ✓	4h18m W	2" / clear				8.7	A0							
	HD58134	07 22.0	−29 43		0822	0900	38m ✓	3h6m W	2" / clear				9:	G5I							T=16°C H=42% wind SNE
1476	HD36219	05 29.1	−01 43	24/25 DEC 1977	0106	0118	11m ✓		1.5 / clear				7 7	B9							full moon at 5h 32m +18°
	36118	05 28.3	−01 58		0121	0156	35m ✓	2h [illegible]	"				8.9	A0			Observer not well – st. much jitter very unstable (more than usual that is)				T=17°C H=66% wind SNE
	36341	05 29.9	−02 20		0158	0218	20m ✓						8.4	B9							
	36485	05 31.0	−00 18		0221	0225	4m ✓						6.9	B3							dom 3
	36502	05 31.1	−01 28		0305	0344	39m ✓	16m E	1" / clear				9.2	B9							MERRY CHRISTMAS FELICES NAVIDADES
	36605	05 32.0	−00 43		0347	0400	12m ✓						8.0	B9							
	36590	05 32.0	−01 00		0502	0546	44m ✓	1h46m W					9 4	B9							
	36444	05 30.8	−01 06		0548	0619	30m ✓						8.98	B9							
	36628	05 32.1	−01 14		0621	0633	12m ✓	2h33m W					8 0	B8							
	36591	05 31.8	−01 35		0636	0637	1m ✓						5.4	131							
	36526	05 31.4	−01 35		0639	0700	20m ✓	3h W					8.3	B8							
	36646A	05 32.2	−01 43		0703	0706	3m ✓						6.5	B3							B~2" in Dec
	36393	05 30.6	−01 58		0711	0735	24m ✓						8 5	B8							
	36898A	05 34.0	−00 08		0737	0744	6m ✓						7.0	B5							B~C, am~2-3
	36935	05 34.3	−00 16		0746	0758	12m ✓	3h58m W	1.5 / clear				7.5	B8							
	HD75022	08 45.6	−29 39		0807	0857	52m ✓	1h45m W	1.5 / clear				9:	K2+II							T=15°C wind 20 NE H=45% T=16°C wind NE H=51%
1477	HD36592	05 31.5	−02 02	25/26 DEC 1977	0049	0139	50m ✓	2h15m E	3" / clear	"	"	"	9.0	B9	"	"	"	cirrus forming			clear double AM=0
	36394 SW	05 30.3	−02 06		0140	0227	46m ✓	1h29m E	2" / clear				9.2	A0:			(7th dot T. double)				
	" NE	"	"		0228	0300	32m ✓		1.5				9.2:	A0.			clouds still not very well!				
	36617	05 31.7	−02 13		0333	0353	20m ✓		2" / clear				8.5	B9							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 184

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1477	HD 36709	05 32.6	-00 04	25/26	0355	0415	20m V		2" clear	3.42	100µ / 0.8	120 / 7.0	8.3	A0	None	10s	None	IIa-O	MIUM-2 7mm 66°F	~	
(cont)	36726	05 32.7	-00 06	DEC 1977	0416	0505	15+11m /		2" Cirrus again				8.8	A0							23mm lost to clouds
	36778	05 32.9	-00 14		0506	0546	40m /	1h 56m W	" few cirrus				9.3	A0							
	36644	05 32.5	-00 13		0548	0600	32m /		" cirrus light				9.1	A0							
	36841	05 33.5	-00 21		0622	0652	30m /		3" v. thin cirrus				8.6	B9							
	36760	05 33.0	-00 25		0709	0721	11m /		" clear				7.5	B8							
	36669	05 32.3	-00 44		0722	0800	38m /	4h 5m W					8.9	A0							
	HD 73884	08 38.0	-07 42		0804	0904	60m 9m	2h 2m W	1.5" clear				~7.5:	K2 IIb	(old)						T=14°C H=46% Wind NONE
1478	CD-32° 15492	00 04.2	-32 31	26/27 DEC 1977	0051	0258	127m /	4h 34m W	2" clear				10	M4 V	Std						T=17°C Wind 5 NE H=35% Wind calm
	HD 363945	05 30.3	-02 03		0304	0331	27m /	19m E	1.5" clear				9.0	A0:							
	36825	05 33.4	-00 44		0335	0355	20m /		"				8.7	B8							
	36715	05 34.0	-00 47		0357	0407	10m /		"				8.0	B9							
	36454	05 34.1	-00 42		0408	0413	4m 5m						6.9	B3							
	36779	05 33.0	-01 00		0414	0417	2m /		"				6.2	B3							
	36684	05 32.3	-01 01		0419	0439	20m /						8.6	B9							
	36695	05 32.5	-01 07		0440	0441	1m 1m		"				5.4	B1							
	36781	05 33.0	-01 42		0444	0505	20m /						8.5	B9							
	36863	05 33.6	-01 43		0506	0520	25m /						8.5	A0							
	36811	05 33.1	-01 51		0527	0534	6m /						7.2	B9							
	36826	05 33.2	-02 21		0537	0553	16m /		"				8.2	B9							
	37037	05 34.5	+00 08		0556	0618	22m /	2h 24m W	"				8.5	B9							
	37236	05 36.3	-00 09		0620	0648	28m 35						8.8	A0							
	37146	05 35.4	-00 16		0650	0717	27m 35						8.6	B9							
	37111	05 35.1	-00 17		0722	0752	32m 40	3h 58m W	1.5 slight cirrus beginning				8.4	A0							
	HD 71629	10 32.6	-59 17		0756	0835	38m 30	17m E	1.5 slight cirrus				~9	G0 Ia-ab							T=1.0°C H=47% Wind calm

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1479	NGC 2287 -1	6 46.1	-20 43	28 Jan	02:12		18s / 16s			342	0.8		5.1					IIa D	METYL SULPHATE	F(+nw)	[illegible] -5
	"	"	"		02:13		30s / 16s	00:42E	2"		0.8		"								-3
	-103	"	"		02:31	02:33	4½ / 2.2m				[illegible]		8.14								[illegible] -1
	-2		"		02:58	03:03	5m / 5m	00:02W	2"		[illegible]		8.18								+1
	-3	"	"		03:12	03:22	10 / 5	00:[illegible]W	2"		[illegible]		8.[illegible]		NeA	3s					[illegible] +7
1480	NGC 2287-4	"	"		03:46	[illegible]	8 / 5	[illegible]4W	[illegible]		[illegible]		8.81								recovered ok [illegible] -
1481	-104				04:24	04:27	5 / 2¼	01:26W	2"		0.8		8.15								-5
	-106				04:31	[illegible]	4	[illegible]4W	2"		1.2		8.18								-
	-120				04:38	04:49	10	01:48W	2"		[illegible]		9.3[illegible]								-1
	-112				04:51	[illegible]	1	[illegible]00W	2"		1.2		7.28								1
	-114				[illegible]	[illegible]	7	[illegible]W	2"		0.8		9.36								[illegible] 3
	-111				[illegible]	[illegible]	1	[illegible]3W	2"		1.2		7.18								5
	-108				05:25	05:31	6	02:31W	2"		1.2		8.82								6
1482	NGC 2571-1	8 18.1	-29 40		06:07	06:13	4	01					8.70								-3
	-2				[illegible]	[illegible]	5	[illegible]47W	[illegible]				[illegible]								-3
1483	SE 14 -4	11 43.3	-62 26		07:14	07:15	40s 25s	00:45E			1.2		5.80	G0 Ia							-3
	-1				07:19	07:29	10	[illegible]31E			1.2		8.34	[illegible]							-3
	-2				07:3[illegible]	[illegible]40	10				[illegible]		9.66								-1
	-3				[illegible]45	07:5[illegible]	4	[illegible]15E			1.2		8.34								-1
	-5				[illegible]	[illegible]	1½	00:01W			0.8		8.87								-5
1484	SE 14 -6				08:15	08:29	14	00:31W			0.8		10.17								-5
	-7				08:[illegible]	08:36	5	[illegible]31W			[illegible]		[illegible]								[illegible] -3
	-14				08:39	08:42	3	00:45W			0.8		8.41								-1
	-13				08:45	08:49	4				[illegible]		[illegible]								+1
	-12				08:51	08:54	3	00:52W			[illegible]		[illegible].46								+3
	NGC 3572 -3	11 07.5	-6[illegible] [illegible]		09:04	09:14	10	01:51W			0.8		9.71								+6
1485	NGC 2287 -104	6 46.1	-20 43	29 JAN	01:02	01:06	4	01:53E	3"		0.8		8.15							F(+nw)	-5
	-106	"	"		01:10	01:16	6m	01:41E	3"		1.2		8.18								-3
	-120				01:19	01:29	10m		2-3		0.8		9.87								-1
	107				01:39	01:43	4m	01:14E	2"		1.2		8.35								+3

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1486	NGC 2287-112	6 46.1	-20 43	29 JAN	02:01	02 07	5m	0 48 E	2" high	242	0.8	112/7.0	7.61					II D	METYL SULPHITE	F	[illegible]
	-129				02:14	02 41	22 24m	0 16 E	2		0.8		10.71								H=61 Grise T=16
	-126				02:44	02 03	18		<2"		0.8		10.40								-1
	-111				03:05	03:15	10	0 17 W	2"		1.2		7.18								+1
	-108				03 18	03 24	6		2		1.2		[illegible]								+5
1487	NGC 2287-115				[illegible] 45	03 33	10	0 55 W	2"		0.8		7.46								-5
	-118				03 57	04:12	14	0 12 W	2"		0.8		7.74								[illegible]
	-116				04:15	04:31	15	0 55 W	2"		0.8		10.13								-1
	-113				04:45	04:53	6	1 57 W			0.8		7.40								+1
	-109				04:57	05:14	6	2 57 W	2"		0.8		[illegible]								[illegible]
	-110				05 06	05 14	8	2 18 W	2"		0.8		1.15								[illegible]
1488	NGC 2571-4	6 [illegible]	-21 40		05 43	06 01	18	1 32 W	2"		0.8		10.31								[illegible]
	-5				06 08	06 [illegible]	24	2 [illegible]			0.6		10.71								[illegible]
	NGC 5747-6	14 47.2	-34 26		07 06	07 18	12	[illegible]	[illegible]		0.6		7.84								-1
	-16				07 21	07 43	20	3 15 E	2-3		0.8		10.47								+1
	NGC 6025-1	16 01.7	-60 6			08 [illegible]	1½				1.2		7.25								[illegible]
	-2						2½				1.2		8.15								[illegible]
1489	-3				08:27	[illegible]	5m				1.2		8.46								-3
	-4				08:34	08 [illegible]	10	[illegible]			0.8		8.31								-3
	-7					~~[illegible]~~	3m	[illegible]			1.2		8.[illegible]								-1
1490	NGC 2169-3	6 07.2	+13 57	30 JAN	01 16	01:27	10	00:48 E	2"		0.8		9.5							F	cloud in S [illegible] T=17
	-7				01 29	02:00	30	[illegible]	[illegible]		0.6		11.08								H=5[illegible] T=18 [illegible]
	-11				02:[illegible]	02:22	20	[illegible]	[illegible]		0.6		10.[illegible] ~~[illegible]~~								-1
	-16				02 24	02:34	30	00 40 W	2		0.6										+1
	-2				[illegible]	[illegible]	4	[illegible]	2"		1.2		8.12								[illegible]
	-4				[illegible]	[illegible] 9	6		2"		1.2		[illegible]								[illegible]
	-1				03 10	[illegible] 12	2	[illegible]	[illegible]		1.2		6.85								+6
1491	[illegible] -24	2 249	-31 41		04:29	[illegible]	4	[illegible]	2"		1.2		[illegible]								[illegible]
	-26					[illegible]	2m	[illegible]					7.5[illegible]								[illegible]
	-22					04:44	1m 6	[illegible]					7.1								[illegible]

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 187
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1491	Cr 140 -21	7 23.9	-31 44	30 Jan		04:51	2½m	01:20			1.2		7.48					[illegible]		F(G)	+1
	-20	7 23.8	-32 01		04:58	05:12	12	01:42	2" [illegible]		1.2		9.32								CLOUD ALL OVER! +3
	-23	7 24.3	-32 11		05:14	05:26	10	01:55	2"-4"		1.2		9.3[illegible]								+5
	-25	7 24.9	-32 28		05:29	05:35	6 5m	02:01W	3"		1.2		[illegible]								+6
1492	Cr140 - 7	7 22.2	-31 53				24s 12s		3"		1.2		5.2								-5
	-8	7 22.3	-31 51		06:11	06:31	20m	03:03W	2"		0.8		10.4								-3
	-10	7 22.7	-32 09		06:34	06:46	10m	03:17W	2"		0.8		9.37								-1
	-9	7 22.5	-32 00		06:49	06:56	5m	03:27W	2-3		1.2		8.12								+1
	-16	7 23.3	-31 52		07:01	07:09	7m	03:41W	2-3		0.8		9.04								+3
	-17				07:10	07:22	10	03:52W	3"		0.8		9.31								+6
1493	IC2395 -3	8 40.5	-48° 07'		07:50	07:51	1m	03:03W	2		1.2		7.09								-3
	-7				07:56	08:01	5m	03:13W	2"		1.2		8.39								-3
	-10				08:01	08:11	10m	03:23W	2"		1.2		9.32								-1
	-11				08:12	08:21	8m		2"		1.2		9.15								+1
	-8				08:23	08:29	5m	03:43W	2"		1.2		8.36								+3
	-1					08:37	30s 15s		2"		1.2		5.34 ~~[illegible]~~								+5
1494	IC2395 -6	8 40.5	-48 07		08:45	08:48	3½m	03:57W	2"		1.2		8.16								-0
	-2					08:57	1m		2"		1.2		8.72								-1
	-4				08:59	—	3½m		2-3		0.8		7.0[illegible]								-3
	-4				09:01	09:05	½		2		1.2		7.05								-5
	-[illegible]				09:08	09:16	10		2		0.8		9.30								+2
1495	NGC 2169 -15	6 07.2	+13 57	31 Jan	00:58	01:32	34 30m	00:40E	2-3		0.6		11.21							F+(Cr)	T=17 H=67 MUCH CLOUD IN WEST + CIRRUS -5
	-7				01:34	02:04	30	00:06E	2-3		0.6		11.08								-3
	S267 -1	6 14.4	+14 17		02:10	02:30	✓20	00:10W	2-3		0.8		10.35								-1
	Dol 24 -5	6 45.5	+1° 13		02:39	02:57	20	00:08W	2"		0.8		10.39		NaA	2s					1,5
1496	NGC2287 -103	6 46.1	-20 43		03:21	03:24.5	3½	00:36W	2"		1.2		8.14								-3
	-128				03:27	03:53	26	01:05W	2"		0.8		10.79								-3
	-110				03:56	04:02	6	01:14W	2"		0.8		9.15								-1
	-125				04:04	04:18	14	01:30W	2"		0.8		10.07								+1
	-112				04:19	04:26	7	01:38W	2"		0.8		9.28								+3

NUMBER	OBJECT	R.A. 1978	DEC 1978	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1496 (cont)	NGC 2287 -127	6 46.1	-20 43	31 Jan	04 31	04:47	16	01:58W	2"		0.6		10.36					IIa D		F (+Cnw)	+5
	-124				04:49	05 03	14	02:14W	2"		0.6		10.31								H=72 T=14 +6
1497	NGC 2343 -2				05:20	05 34	12	02:24W	2-3		0.8		9.72								H=76 T=13 -5
	-5				05:37	05:56	18	02:46W	2-3		0.8		10.19								VB T=16 -3
	-6				06 03	06:21	18	03:12W	2-3		0.8		10.38								H=76 T=14 -1
	-3				06:22	06:30	8	03:20W	2-3		0.8		9.37								+1
	-4				06 33	06:40	~~14~~ 7	03:30W	2-3		~~0.8~~ 1.2		~~8.69~~ 8.69								+5
1498	Pos 4 -1	03 35	-44 "		07:10	07:15	5	02:40W	2-3		1.2		8.31								-3
	-3				07:18	07:32	14	02:56W	2		0.6		10.49								-1
	-9				07:34	07:41	6	03:03W	2-3		0.8		9.04								-1
	-11				07:43	07 50	7		2-3		0.8		9.16								T=17 +1
	-12					07:54	3		2-3		1.2		7.83								+3
	-13					07:58	1.5		2-3		1.2		7.28								+5
	-15				08 00	08:18	16	03:43W	2-3		0.8		10.15								+6
1499	NGC 3572 -1				09:03	09:06	3	01:55W	2		1.2		7.97								-3
	-5				09:08	09:15	6	02:04W	2		0.8		5.48								-1
	Hogg 10 -1				09 16	09:18	1½		2		1.2		7.25								-1
	" -11				09:19	09:23	4	02:09	2		1.2		8.37		[illegible]	2"					H=73 T=16 +2
1500	NGC 2169 -5	06 07.2	+13 57	-eb-	00:42	00:49	each 6	01:18E	2-3		1.2		8.72							F	[illegible] T=16 -5
	-7				00:53	01:39	both ~~40~~	00:28E	2(-3)		0.6		11.08								-1
	S 283 -8	06 37.1	+00 44		01:47	04 04	both 140	01:28W	2"-1"		0.6		12.41								-1
	G 140 -17	07 23.2	-31 33		04:13	04:20	7m ~~14~~	~~01:12W~~	"		0.8		~~10.19~~ 9.31								+1
	-13				04:21	04:35	each 14	01:12W	"		0.8		10.9								-3
	-22					04:39	2m	01:16W	"		1.2		7.5								+5
[illegible]	G 140 -10				05 03	05:10	7		"		0.8		9.77								-3
	-1				05 16	05 26	10	02:07W			0.8		9.70								-1
	-2					05 31	1.5m				1.2		7.03								+1
	Pos 4 -6	03 35	-44 "		05 46	06:36	20	02:04W	1"		0.6		11.81								+3
	-8				06:38	06:59	20	02:27	2"		0.6		10.82								+6
	-10				07:01	07:21	20	02:50			0.6		11.32								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS	REMARKS
1502	NGC 5316-3	13 52.3	-61 45	1Feb	07:59	08:38	40^m	01:15E	2"		0.6		11.63 ~~11.37~~					IIaD	METYL SULPHITE	F	-5
	6023-5	16 01.7	-60 26		08:49	09:01	12	03:1			0.6		10.31								-1
	-6				09:04		16				0.8		1.00							T:12 H:	-1
	-7					33.16	32				1.2		8.83								+1
	-11				09:19	09:22	3 4				1.2		8.58								
	SNV				09:22	09:26	4^m				1.2				N.A	2^s					-6
1503	NGC 2343-4	7 07.3	-10 35	2Feb	01:12	01:27	~~14~~ 14	1:36E	2-1		0.8		10.03						F	T:18 H:61	-5
	-10				01:29	01:49	~~20~~ 20	1:14E	2		0.6		10.79		NaA	2^s					-3.1
1504	NGC 2343-18	7 07.3	-10 35		02:31	03 22	✓44	0 18W			0 6		11.69								-5
	-11				03:23	03 45	✓22	0.42W	2-3		0.6		10.88							T:17 H:60	-3
	-7				03:47	04:03	✓16	1.02W	2		0 6		10 30								-1
	-8				04:04	04.22	✓16	1 19W	2-3		0 6		10.47								+1
	-12				04:24	04:40	✓24	1 38W	2-3		0.6		10.84								+3
	-9				04:41	04:59	✓18	1.58W			0.6		10.64								+5
	-~~5~~ 4				05:01	05:11	✓10	2:09W			0.6		10.03								+6
1505	NGC 2571-4	8 18.1	-29 41		05.28	05.43	✓14	1 30W			0 6		10.31								-5
	-5				05.44	05.59	✓14	1.46W			0.6		10.58								-3
	-~~7~~				06.01	06.24	✓20	2 12W			0.6		10 82 ~~10.87~~								-1
	-3				06:27	06.51	✓20	2 40W			0.6		10 77								+1
	NGC 3324-1	10 36.5	-58 30		07 05		40^s ✓05	0.53W			1.2		5 96								+3
	Probably #4 ~~-2~~				07:13	07 17	~~4~~ 4^m	00:46W			1 2		8.34							not 4	+5
	-4				07.23	07.30	✓ 6^m	00 59W			0.8		9.22								+6
1506	NGC 3324-9				07.47	08 13	✓26	1.44W			0.8		9.04							Center of diffused nebulosity	-5
	+0				08 17	08.49	✓32	2:13W			0.8		11.18								-3
	-6				08.51	09:01	✓10	1.31W			1.2		9.43								-1
	-3				09:02	09.09	✓7	2:41W			1 2		8.92								1
	2+5				09:~~10~~	09:15	✓4	2:45W			1.2		8.33		NaA	2^s				DAWN SKY HAS MUCH CIRRUS	3.6
1507	NGC2287-115	06 46.1	-20 43	3 Feb	00:50	01:06	16= ~~16~~ 1.6x10	1:32E	2"	POOR? ΔM=8	1.2		9.46						F	CIRRUS ALL OVER quasi abs?	-5
	-119				01:08	01:24	16= 1.6x10	1:13E			0.8		9.82							T=18 H=52	-3
	-121				01:25	01:39	20 ~~1.6~~ 1.4		2"	IMPROVE	0.8		10.11		NaA	2^s					-1

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 190
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	1948 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1508	NGC 2287-23	06 46.1	-2 43	[illegible]	01 58	02 17	[illegible]	00 21E	2" / ok		0.6		[illegible]							F	[illegible] -5
1509	-16				02:32	03:04	30	00 28W					11.22								-5
	NGC 2343-11	07 07.3	-10 55		03:08	03 32	22	00 34W					10.88								-3
	-17				03:33	04:14	40	01 16W	2-3"				11.60								[illegible] -1
	Bo 445 -1	07 30.8	-16 57		04 22	04.25	3	1:05W			1.2		8.0[illegible]								+1
	-2				04:27	04:31	12	1 17W			0.8		9.8[illegible]								+3
	-3				04 43	05 04	20	1 43W			[illegible]		10.44								[illegible]
	-9				05 [illegible]	[illegible]	14	[illegible]			[illegible]		9.77								[illegible]
1510	NGC 3572 -2	11 10.1	-6 10		05 30	[illegible]	12	[illegible]	3 [illegible]		[illegible]		9.27								
	-4				[illegible]	[illegible]	24	[illegible]	[illegible]		[illegible]		[illegible]								[illegible]
	-1				06 [illegible]	[illegible]	36	[illegible]	[illegible]		[illegible]		[illegible]								[illegible]
	[IC 2944] SLS 2425	11 35.6	-[illegible] 34			[illegible]	[illegible]	[illegible]			1.2		[illegible]								1
	SLS 2427					[illegible]	[illegible]				1.2		[illegible]								[illegible]
	SLS 2427					[illegible]	[illegible]				[illegible]		[illegible]								
	SLS 2439				[illegible]	[illegible]	4	[illegible]			[illegible]		7.7								[illegible]
1511	SLS 2438				07:35	[illegible]	[illegible]				[illegible]		[illegible]								[illegible]
	SLS 2433				[illegible] 46	[illegible]	[illegible]				[illegible]		[illegible]								[illegible]
	SLS 2430				[illegible]	[illegible]	[illegible]	[illegible]			[illegible]		1.9								[illegible]
	SLS 2431				08:16	[illegible]	6	[illegible]			[illegible]		[illegible]								+1
	[illegible]						[illegible]		[illegible]				7.7		[illegible]	[illegible]					[illegible]
1512	NGC [illegible] -1	07 13.3	-10 16	4F.6		[illegible] 42	[illegible]	2 20E	2-3 [illegible]		1.2		[illegible]							F	-3
	"10"				00 47	00:39	10	2.02E	2		0.8		[illegible]								-3
	102				00:39	01:10	10	1:51E	2-3		0.8		9.3								-1
	108				01:11	01 57	26	1:24E	2		0.8		10.6								1
	116				01:40	02 22	40	0.41E	2 [illegible]		0.6		11.5								3
	104				02:23	02 33	10	0 29E	2		0.8		9.7								5
	3				02 36	02:36	20	[illegible] 5E			0.8		10.43								6
1513	Cr 140 -5	07 21.9	-31 58		03:40	04:24	44	1.15W	<2"		0.6		11.71								-5
	-6				04 25	05.01	36	1:52W	<2"		0.6		11.49								
	-13				05 06	05 26	20				0.8		10.19								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	1978 R.A.	1978 DEC	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1514	NGC 3324-11	10 36.5	-58 30	4 Feb	03:56	06:36	40				0.6		11.41							F	-2
1515	IC 2944 SLS 2425	11 37.0	-63 15		07:04	07:15	10	0.1E			1.2		8.36								-3
	2426				07:17	07:49	30	00:24W			0.6		11.2								-1
	2415				07:51	08:06	14	0.42W			0.8		9.9								-4
	2414				08:08	08:14	6	0.[illegible]			0.6		8.8								+1
	2424				08:16	08:18	2	0.04W			1.2		7.3								+1
	2428				08:19	08:26	6	0.08W			0.8		8.8		N:4	2s					+5
1516	2441				08:38	08:57	18	1.32W			0.8		10.1								-3
	2450				09:00	09:07	7	1:40W			0.8		9.3								-3
	HD 101712				09:09	09:18	7	02:50W			0.8		9.3	cM							-1
	2420				09:22	09:24	60s				1.2		7.17		N:4	2s				T=17 H=68	+1
1517	Bo 45 - 4	7 30.8	-17 13	5 Feb	03:51	04:25	24	1.12W			0.8		10.24						F		-5
	-5				04:28	05:05	30	1.52W	2" CIRRUS		0.6		11.2							T=16 H=55	-3
1518	NGC 2169 - 9	6 07.2	+13 57	6 Feb	00:56	01:52	148	00:56E	2-3		0.6		10.08						F	T=16 W=15 mph H=57	-5
	S 283 - 8	6 37.2	+00 45		01:01	04:01	180	01:45W	2-3		0.6		12.81								-3
1519	NGC 3324 - 19	10 36.5	-58 30		05:01	06:01	60	00:16E	2-3		0.6		11.91							W 20-30 had to quit following loop [illegible]	-5
1520	NGC 2169 - 6	6 07.2	13 57	7 Feb	00:26	00:32	6 ✓	01:12E	2		0.8		4.16						F		-5
	-14				00:34	00:42	overexposed 6	01:03E	2		0.8		~8.8							contaminated by 1 prob	-3
	-18				00:46	01:38	50 ✓	00:55E	2?		0.6		11.91							SKY NICE 30 MIN FOR A CHANGE	-1
	NGC 2345 - 14	7 07.3	-10 35		01:47	02:22	36 ✓	0.21E	2		0.6		11.38								1
	-16				02:24	[illegible]:14	50 ✓		2		[illegible]		11.81		[illegible]	2s					3
1521	ZCMa -13				03:42	[illegible]	20	1.03W	2		[illegible]		10.31								[illegible]
	-12				04:04	[illegible]	14	1.27W	[illegible]		[illegible]		7.96							T 16 [illegible]	-3
	-34				04:22	4:44	20	1:16W	2-3		[illegible]		12.46								-1
	-3				04:47	05:13	26		3		[illegible]		[illegible]								+1
	-2				[illegible]:14	05:44	26	2.12W	3		[illegible]		11.16								[illegible]
	-30				[illegible]:45	05:49	7		3		[illegible]		[illegible]								[illegible]
	31				05:[illegible]	05:59	7	3:[illegible]	3-4		0.6		1.20								[illegible]
1522	[illegible] -24				06:19	07:42	✓ 55		[illegible]		HD 192281 *		[illegible]								-3
	IC 2944 - 2184				07:56		✓ 20													T=18 [illegible]	-3

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	1977 OBJECT	1978 R A	DEC.	1978 DATE U.T	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
(cont) 1522	IC 3944 HD 10412	11 [illegible]	-6[illegible] 34	7 Feb	[illegible]	[illegible]	✓14	1 [illegible]W	3		0.8		[illegible]	[illegible] + B?						F	-1
	SLS 489				[illegible]	[illegible]	wk 20	1 44W	3		0.6		[illegible]								+1
	2421				07 04	[illegible]	✓10	2 [illegible]W	3		0.6		7.7								+[illegible]
	2412				07 16	[illegible]	✓2	2 [illegible]W	3		[illegible]		[illegible]								+[illegible]
	2422				[illegible] 24	07:31	✓7	2 [illegible]W	3		[illegible]		1.3								+[illegible]
1523	Bo4+5 - 14	7 30.8	-16 57	8 Feb	00 19	00 30	✓10	2 35E	2 CLEAR		[illegible]		7.67							F	-5
	-22				00 32	00 42	✓10	2 22E	2		0.8		9.15								-3
	-21				00 45	01 10	✓22	1 55E	2		1.2 [illegible] ? 0.8		10.59								-1
	SLS 464	7 29.5	-14 56		01 28	02 06	Lost ✓36	0 [illegible]6E	2		0.6		11.05								[illegible] +1
	424	7 26.8	-13 20		02:09	02 25	✓14	0 34E	2		0.8		9.90								+[illegible]
	427	7 27.2	-13 18		02:29	03 29	✓60	0 31W	1-2		0.6		12.03		NoA	2[5]					+5,6
1524	428	7 27.3	-15 15		03:44	04.56	✓70	01 52W	1-2		0.6		[illegible]								-5
	453	7 28.6	-14 56		05:07	05 48	✓40	02 48W	2		[illegible]		11.20								[illegible] -3
	4530	7 29.0	-14 56		05 49	05:54	✓5	02.54W	2		0.8		~9								-[illegible]
	NoC 3324 -13	10 56.5	-58 30		06 06	06:46	✓40				1.2 [illegible] 0.6		11.47								+1
	Bo 10 -1	10 42.0	-58 [illegible]8		[illegible] 53	07 02	✓8	00:48W	2		0.8		9.52								+4
	-2				07.03	07 36	✓30	0[illegible]:[illegible]W	2		0.8		10.83								+5
	-3				07.38	[illegible] 45	✓10		2		[illegible]		9.65								+6
1525	-4				[illegible]	[illegible]	✓9	[illegible]	[illegible]		[illegible]		[illegible]								-[illegible]
	-5	10 41.0	-59 00		[illegible]	08:[illegible]9	✓8	02.06W	[illegible]		[illegible]		9.51								-3
	-7	10 41.0	-59 00		08 19	08 38	✓18	02 26W	[illegible]		0.6		10.68								-1
	-8	10 40.8	-59 00		08 40	08.54	✓14	02 42	2		0.6		[illegible]								1
	-15	10 40.7	-58 59			09:05	✓10				0.8		9.67								3
1526	-9				09:12	09:24	[illegible] 12	[illegible]	2		0.8		9.40								-5
	-10	[illegible]			[illegible]		✓4	[illegible]			[illegible]		[illegible]								-3
	-12						✓[illegible]				[illegible]		[illegible]								-1
	-[illegible]		[illegible]			09:33	[illegible] ✓[illegible]	03 24W			[illegible]		[illegible]								1
	[illegible]	[illegible]	[illegible]		09:34	09:7	[illegible] 3[illegible]				[illegible]		—		[illegible]	2[illegible]					3
1527	NoC 2362 -9	07 17.7	-24 53	9 Feb	00 22	00 37	✓12	02 [illegible]			[illegible]		9.72							F	[illegible] 18 H-56 -5
	-21				00 39	00:59	✓20	01:48E	2 CLEAR		[illegible]		[illegible]								-3

NUMBER	OBJECT	1978 R.A.	DEC.	DATE U.T. 1978	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
(con) 1527	NGC 2362-16	7 17.9	-24 53	9 Feb	01 01	01:28	✓26	01 48E	2		0.8		10.64							F	-1
	-25				01 29	01.58	✓26	0.48E	1-2		0.8		10.78								1
	-56				02:00	03:12	✓70	00 25W	1-2		0.6		12.14								3
	-24				03:13	03:51	30 ✓30	01:05W	2		0.8		10.97								exposure interrupted 8m 5
	-29				03:53	04.29	✓36	01 44W	1-2		0.6		11.32								6
1528	Bo4+5 -3	7 30.8	-17 13		04:44	05:04	✓20		2		0.8		10.44								-5
	-27				05:11	05:49	✓36	02 51W	2		0.6		11.33								-3
	K2395 -1					06 02	partly cut 30s ✓ 14s		2		1.2		5.34								-1
	-36				06 07	06 15	✓8m	02:08W	2		0.8		9.52								1
	-57				06.16	06:29	✓12	02 22W	2		0.8		9.91								1
	[illegible] -5?				06:33	06 43	✓10	03 35W	2		0.8		9.09								5
	-24				06:50	06 59	✓8	02 51W	2		0.8		9.49								6
1529	Bo10 -13	10 41.3	-39 00		07:13	07.50	✓36	01:41W	2		0.6		11.8								-3
	-11				07 31	08:12	✓18	02.04W	2		0.8		10.27								-3
	HR 4177						80/40 ✓ 60s				1.2		6.14								-1, +1
	Bo11 -1				08 22	08:28	✓6m		2		1.2		8.67								+5
	-3	10 46.1	-60 00		08:29	08 55	✓24	02:42	2		0.8		10.64								+5
1530	-SLS 1901				09:03	09:11	✓8	02:59W	2		0.8		9.5								-3
	-SLS 1896				09:12	09.24	✓12	03:12W	2		0.8		9.8								-3
	HR 4188					09:28	✓ 40s/80s ✓ 40s	03:22W	2		1.2		6.45	WN7	N:A	2					T=17 H=52 -1, 1, 5
1531	NGC 2546-30	8 11.1	-37 34	10 Feb	00:24	00:50	✓ 5m	03:07E	3 CLEAR		1.2		5.46							F	-5
	-9				00:27	00:50	✓ 8	02 47W	4"-3		0.8		8.93								-3
	-10				00:52	01:00	✓ 4	02:33E	4"		0.8		8.58								-1
	-98				01.07	01 27	✓ 24	02:08E	3-4-2		0.8		10.12								T=15 W=10 H=70 +1
	-99				01:28	01.37	✓ 8	01:58E	3		0.8		9.35								+3
	-155				01 52	02:20	22 20	01:17E	3-4		0.8		10.18								Poor recovery - [illegible] [illegible] +5
	-356				02:22	02:44	20	00:54E	3-4		0.8		9.50								+6
1532	Russ -1	8 11.6	-32 32		02.58	03:06	✓8	00:28E	3-4		0.8		8.42								-5
	NGC 2571-6	8 18.1	-29 41		03:35	05.05	✓90	01:23W	2		0.6		12.10								T=16 H=64 -3
	-9				05.06	05 46	✓40	02:04W	2		0.6		11.52								-1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T. 1978	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS	
(con) 1532	Bo 11-4	10 46.1	-60 00	18Feb	05 52	06:29	36	00:18W	2		C.6		11.41					IIa-D	103-5	F		+1
	NGC 3372-6	11 09.5	-60 08		06:42	07 08	24	00:35W			0.6		10.97									+3
	-7				07 09	07 29	20	00:55W			0.8		10.35									+5
1533	SE-14-8	11 42 8	-62 27		07 44	08:02	18	00:57W			0.8		10.41									-3
	-9				08 03	08 23	18	01:17W			0.8		10.45									-2
	-11				08:25	08:47	22	01:41W			0.6		10.89									-1
	NGC 4103-11				09:03	09:11	8	01:42W	L		0.8		9.54									1
	-12				09:12	09:20	8				0.8		9.40									2
	-10				9.21	09:27	6	01:58W			0.8		7.48		N=4	2s						+;6
1534	NGC 2353-1	02 13.5	-10 16	11 Feb		00 42	15s		2-3		1.2		5.56					IIaD-B		F		-5
	-101				00:45	00:51	6m	00:48E	2-3		0.8		9.8									-3
	-102				00:52	00:57	30s 5m	00:37E	2		0.8		9.3								T=15 W=24 H=88	-1
	-103				00:57	01:11	2.17m 10m		2-3		0.8		10.6								TEST PLATE FOR GUIDING	1
	-2 ~~103~~				01:13	01:20	6	00:15E	2-3		0.8		7.17									2
	-3 ~~104~~				01:21	01:27	4m 15	00:02W	2		0.6		10.43									3
	-4				01:37	01:50	2C 5m		-3		1.8		9.77 ~~11.18~~								[GAIN ~ 1.5 x 0.7s exp	4
1535	SCS 43	7 27.4	-15 08		02:11	02:11	60s 35	00:13W	2-6"		0.6		10.85									-3
	470	7 29.8	-15 01		02:22	04:14	5m 30	01:24W	2-6		0.6		11.71								T=4 H=88	-3
	487	7 33.4	-15 16		04:21	05 11	16				0.6		11.33									-4
	IC 2395-18	8 46.5	-48 07		05:21	05 56	34	01:55W	2		0.6		11.00									+1
	-15				05:56	06 09	12	02:09W	2		0.6		10.04									+3
	-9				06:11	06:16	4L		2		1.2		8.85									+5
	-14				06 17	06 33	14	02:34W	2		0.8		10.37									+6
1536	NGC 3372 -16	11 09.5	-60 08		06 53	07:44	45	01:14W	2		0.6		12.08									-5
	-11				07 45	08:17	30	01:48W	2-6		0.10		11.49									-3
	~~-13~~						~~76~~				~~0.8~~		~~10.72~~		N=4	2s						-1
1537	NGC 2447-SLS 531	7 32.6	-15 46	13 Feb	00.25	01 07	40	01 38E	2		0.6		11.37					IIaD		F	T=16 H=73	-5
	527				01:16	02:36	80	00 08E	2		0.6		12.43									-3
	508	7 31.3	-15 13		02:53	03:34	40	00:20W	2		0.6		11.36									-1
	505	7 31.1	-15 24		03 45	05.05	80	02 22W	2		0.6		12.08									+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1925	DEC. 1978	DATE U.T. 1978	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
com 1537	IC 2581-2	10 26.6	-57 12	13 Feb	05:11	05 13	2m	00.25E	2"		1 2		7.45						M-5	F		+3
	-3				05 17	05:23	6m	00 15E	2"		1.2		8.84									+5
	-7				05.35	05:55	16	00:16W	2"		0.8		10.26									+6
1538	-6				06:06	06.36	30	00:57W	2"		0.6		11.15					IIaD				-5
	-10				06 37	07.13	34	01:36W	2"		0.6		11.31									-3
	IC 2444-2410	11 35.8	-63 15		07:22	07.31	.8	00:40W	2"		1.2		9 1									-1
	-2412	11 36.0	-63 11		07 34	08:12	34	01:25W	2"		0.6		11.2									1
	-2436	11 38.3	-63 03		08 15	08.31	34	02.02W	2"		0.6		11.1								T=15 w=5 M-54	3
	-2432				08:32	08.42	18	2:24W	2"		0.8		10 4		[redacted]	2						5
	-2430				09.12	09:28	14	2:40W	2"		0.8		9 9									6
1539	NGC 2362-4	07 17.9	-24 53	14 Feb	00 47	01 58	70	00.29E	1"		0.6		12.52					IIaD-B	M-5	F	T=16 w=5 M-58	-5
	-5				01 59	02 13	14	00:13E	1"		0.6		10 42									-3
	-15				02.15	02.56	40	00 30W	1½"		0.6		11 79									-1
	-28				02 58	03 48	50	01 18W	1½		0.6		12.07		NaA	2						1
1540	NGC 2571-12	8 18 1	-24 60		04 34	05:50	76	00 24W	1½		0.6		12.60					IIaD-B		F		-5
	Stock 14-17				05 58	06:56	56	00 03W	1½		0 6		12.14								T=16 w=0	-3
	IC 2444-2443	11 35.6	-63 34		07 04	07 20	16		1½		0.8		10.6									-1
	-2441				07 22	07 52	10	00 45W	1½		0.8		10.1								used focus from long-last 6 exposures	+1
	-2442				07.52	07 56	16	00 05W	2		0.8		10 7									+3
	2444				07 31	08.15	20	00 18W	2		0.6		11 1		NaA	2						+36
1541	2453				08.34	08 52	16	00 05W	2		0.8		10 6									-3
	2459				08:34	09 11	16	00 24W	2		0.6		10.5								dot exp	-5
	NGC 4103-4	12 05.6	-01 07		09 17	09.27	10		2		0.8		15 58									
	-1				09 29	09 37	6	00.25W	2		0.8		9.55									-1
1542	SLS 519	7h 30.0m	-15° 53'	15 Feb	01:12	02:23	70	0h 12m E	1-2"/clear	3.42	100u/0.6	12u/7.0	12.13		NaA	2.5		IIaD-B	15m; 75° M-5	F+Crw	T=16° H=44%	-5
	SLS 520	7h 32.2m	-15° 24'		02:32	03:23	50	00 47W			0.6		12.19									-3
	508	7 31.6	-15 12		03 29	04:04	34	1h 28m W			0.8		11.36									-1
1543	IC 2581-78	10h 27.0m	-57° 31'		05 56	06:13	14	0h 42m W			1.2		9.66					IIaD-B		Crw		-5
	-79				06:22	06:37	11	1h 07m W			0.8		9.65									-3
	-80				06:50	07:11	18	1h 41m W			0.8		10.32									-1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1543	NGC 3512-10	$11^h 01.5^m$	$-60° 08'$	Feb 15	07:35	07:55	18^m	$1^h 43^m W$	1"-2"/clear	3.42	100μ/0.8	120/70	10.35		NeA	2^s		IIaD	15m; 75°F M-S	CfW	2 NIXIE TUBES NOD ISSUE! +1
	IC 2944-18	$11^h 36^m$	$-63° 17'$		08:20	08:40	15^m	$2^h 00^m W$			0.8		10.1								T=16 H=44? +3
1544	HR 1791	$5^h 24.9^m$	$+28° 35'$	Feb 16	01:23	01:25	27^s (FLICKER) 47^s	$1^h 00^m W$	1"-2"/clear	3.42	100μ/1.2	120/70	1.52	B8 III	NeA	2^s	—	IIaD	15m M-S	F+CfW	T=8 1^s tails -5,-3
	HR 1713A	$5^h 13.3^m$	$-08° 14'$		01:31	01:32	16^s (FLICKER) 20^s (SLOW)	$1^h 20^m W$					0.05	B8 Ia							TT =8 1^s tails +1,+1
	HR 1895	$5^h 34.1^m$	$-05° 24'$										5.22	O6							NO FINDING CHART
	HR 3314	$8^h 24.5^m$	$-03° 51'$		01:42	01:47	$3^m, 3^s$ (FLICKER, SET TRANS)	$1^h 40^m E$					3.88	A0 II							
1545	HR 2628	$6^h 59.2^m$	$-22° 05'$		02:01	02:03	$28^s, 50^s$	$0^h 03^m W$					6.34	B2 IV-V							-5,-3
	HR 3011	$7^h 43.7^m$	$-37° 53'$		02:10	02:13	$25^s, 40^s$ (SLOW)	$0^h 30^m E$					5.74	B7 II							
	HR 3241	$8^h 13.1^m$	$-36° 16'$										5.91	B2 IV-V							
	HR 3078	$7^h 50.9^m$	$-42° 49'$		02:23	02:25	$20^s, 40^s$	$0^h 27^m E$					5.85	B2 III							
1546	HR 3090	$7^h 52.6^m$	$-47° 57'$		02:35	02:37	$20^s, 35^s$	$0^h 17^m E$					4.08	B0.5 Ib							
	HR 3219	$8^h 10.2^m$	$-37° 14'$		02:42	02:44	$30^s, 55^s$	$0^h 28^m E$					6.42	O9.5 II							
	HR 3293	$8^h 20.8^m$	$-57° 54'$		02:53	02:55	$20^s, 40^s$	$0^h 27^m E$					6.07 V=	B1.5 III							
1547	HR 3250	$8^h 14.0^m$	$-45° 46'$		03:13	03:15	$28^s, 60^s$	$0^h 00^m$					6	B2 IV-V							
	HR 3476	$8^h 43.3^m$	$-49° 46'$		03:18	03:19	$13^s, 24^s$	$0^h 25^m E$					4.93	B0 III							
	HR 3527	$8^h 50.2^m$	$-46° 27'$		03:22	03:23	$10^s, 22^s$	$0^h 28^m E$					4.87	B0 III							
1548	HR 3560	$8^h 58.2^m$	$-60° 15'$		03:43	03:45	$30^s, 40^s$ (SLOW)	$0^h 09^m E$					5.68	B5 III							
	HR 3654	$9^h 10.1^m$	$-44° 47'$		03:50	03:51	$14^s, 28^s$	$0^h 20^m E$					4.78	B5 Ia							
	HR 3944	$9^h 55.7^m$	$-71° 17'$		03:55	03:57	$60^s, 45^s$	$0^h 59^m E$					6.26	B2 Ib							
1549	HD 90586	$10^h 25.4^m$	$-53° 47'$		04:11	05:14	$10^m, 18^s, 30^s$	$0^h 12^m E$			100μ/0.8		9.9:	M2 Iab							
	HD 96746	$11^h 07.2^m$	$-31° 58'$		05:29	06:32	$20^m, 40^s$	$0^h 25^m W$					10.5	B2 Iab							
1550	HR 784	03 14.3	-08 34	Feb 17			17'		2		1.2		5.03	K2 V					F+CfW		H=54 6 bad cliff sec
	796	03 13.2	+05 17				16'	2 06 W	2		1.2		5.50	G0 V							
	1258	04 04.4	-20 12		04 27	24	36'	1 27 W	2		1.2		6.29	B2.5 V							
	1772	04 20.4	-34 21		04 04	24	24'	0 17 W	2		1.2		4.76	B1.5 III							
	HD 27978	04 11.7	-16 33		04 41	04 12	30'	01:57 W	2" CLEAR	3.42	0.8		10.4	M4 III							
1551	HR 1143	04 48.3	+00 33				2'				1.2		2.64	F6 V							
	1885	05 34.1	-05 24			01:33	21	14^s 1 02 W			1.2		5.22	0.6							
	2614	06 [illegible]	[illegible]			[illegible]	[illegible]						[illegible]	[illegible]							
	2640	07 03.1	-25 10			01:44	25	22^s 0 13 E			1.2		5.7	B2 IV							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	1978 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
(cont) 1551	HR 1996	05 45.1	-32 19	Fe17		01:49	20s 2 input 10s	1:07 W			1.2		4.08	O9.5 IV					F+[illegible]		+2
	2475	06 40.5	-40 20			01:56	26 28s	0:19 E			1.2		5.86	B4 V							+6
1552	HR 2907	07 32.4	-40 00			02:11	27s 32s	0:28 E			1.2		6.12	B8							-2
	2695	07 07.8	-24 01			02:16	43 42s	0:12 E			1.2		6.4	B2 V							-3
	2733	07 12.8	-22 52			02:20	2 spectra 42 32s	0:12 E			1.2		6.11	B5 IV							-1
	2734	07 12.5	-27 19			02:24	25 22	0.14 E			1.2		5.85	B0.5 V							+2
	2986	07 41.1	-38 29			02:28	30 36	0:09 E			1.2		6.24	B7 V							-2
	2885	07 30.6	-36 06			02:32	54 50s	0:06 W			1.2		6.16	B4 V							+5
1553	2968	07 39.2	-37 22			02:44	25 28s	0:09 W			1.2		5.75	B6 IV							-2
	3001	07 42.9	-38 09			02:49	2 spectra 31 42s	0:08 W			1.2		6.4	B2 III							-3
	3016	07 44.3	-37 50			02:53	2 spectra 28 44s	0:12 W			1.2		6.13	B8 IV							-1
	3241	08 13.1	-36 16			03:02	26 28s	0:05 E			1.2		6.11	B2 III-V					2 nebs		+2
	3314	08 24.5	-03 51			03:07	3 FAST TRAILS 4s	0:14 E			1.2		3.83	+0 V							+1
	3525	08 48.5	-41 57			03:13	30 26s	0 :06 E			1.2		5.91	O7.5 V							+6
1554	3638	09 15.2	-44 45			03:28	4 spectra 30 38s	0:14 E			1.2		6.32	B1 IV							-3
	3691	09 14.7	-58 17			03:34	42 27s	0:37 E			1.2		5.10	B7 III							-3
	3878	09 46.3	-50 06			03:50	25 50) 38s	01:03 E			1.2		6.32	B1 III n							+1
	4147	10 32.5	-58 05			03:50	42s 46s	01:40 E			1.2		6.31	B7 Ia							+3
	4198	10 41.8	-59 06			03:54	10 FAST TRAILS 24s	01:45 E			1.2		1.71	B2 Ia							+5
1555	HD 96746	11 07.2	-31 58		04:07	04:35	20	01:30 E	2"		1.2		10.5	[illegible]							-3
	HR 4438					04:41	45s 42s	01:47 E			1.2		8.36	B7 Ia							+1
	4442					04:47	2 spectra final 20s				1.2		[illegible]	B2 Ia							-2
	4541					04:54	2 spectra 43 30	01:51 E			1.2		5.14	B2 V							+1
	4534					05 0-	10 FAST TRAILS 1s	01:46 E			1.2		2.23	B5 V							-2
	4511					05:06	2 spectra 42s 24s	01:55 E			1.2		5.41	F7 Ia							+3
1556	4551					05:13	" 40 20				1.2		5.65	B4 III							0
	4610					05:22	5 TRAILS 5s	01:15 E			1.2		4.16	F8 V							-3
	4608					05:32	24 20s	01:04 E			1.2		5.6	G5 III							-1
	4625					05 37	5 TRAILS 4s	01:34 E	2"		1.2		3.61	F0 V							+2
	4883					06:04	30 20	01:43 E	4"		1.2		5.93	F0 V							+4
	4832					06 08	4 TRAILS 4s	01:50 E	3"		1.2		3.81	G5 III G							+6

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC.	DATE U.T. 1978	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1557	IC2944-2441	11 33 3	-63 19	17.6	06 33	06:50	15m	2.15W	2" CLEAR		0.8		10.1					IIaJ	IIIa	F(1.25)	TREMBLOIR!
	-2442	11 38.8	-63 16		06 52	07.11	18	0.10W			0.6		10.5								
	-2444	11 39.0	-63 17		07 13	07.45	30	0.07W			0.6		11.1								
	-2459	11 41.1	-63 14		07.47	08:11	24	0.35W			0.6		10.6								
	HD 101712 ~~HD 101717~~	11 40.6	-63 16		08 12	08 44	32	0.07W			0.6		9.3	PHOTO	10.4	2"					
1558	NGC 6322 ~~HD 101778~~	17 16.9	-42 55			07:00	25				1.2		7.77								
	-52				04:08	04:17	9	2.36E			0.6		~~7.47~~								
	-51				04:17	04:32	14	02.42E			0.8		7.77								
	-82				04:32	04:47	15				1.2		8.10								
	-17					09:40	25	0.55E			1.2		7.37		2(Na+ 2")						
1559	HR 984	03 14.8	-05 34	18 Feb		00:22	2.40	03.15W			1.2		5.0	K2V						F(1.25)	
	HD 27598	04 19.7	-16 33		00:33	00:47	26m		1.2 CLEAR		1.2		10.4	IIIaJ	N+	2"					
1560	WC 2352+04	07 14.1	-10 14		00:51	01:09	10				0.8		9.2								
	-115				02:04	02:49	42	0.43W			0.6		11.5								
	Bo 445-15	07 30.8	-16 51		02:53	03:16	20	0.00W			0.6		10.0								
	-16				03:18	03:41	22	1.18W			0.6		10.73								
	SLS 460	07 27.1	-15 44		03:48	04:24	34	2.04W			0.6		11.11		N+	2"					
1561	NGC 2546-132	08 11.7	-17 32		04:30	05:05	8	1.39W			0.8		9.33								
	-134				05:21	05:37	6	2.06W			0.8		9.01								
	-508				05:37	05:44	7	2.17W			0.8		10.03								
	-313				05:45	05:51	6	2.43W			0.8		8.92								
	-312				05:52	06:00	7½	2.52W			0.8		6.36								
	-185				06:02	06:07	6	3.01W			0.8		7.55								
1562	HR 4584	11 42	4 42			08:02	2 EXPOS TIME 1				1.2		2.23	A3V							
	4936	13 [illegible]	11 [illegible]			[illegible]	4 EXPOS TIME 8	01.23E			1.2		3.81	~~A3V~~ 6							
	HD 117557	13 [illegible]	-6 10		06:34	07.13	14m		2 TIMES EXPOS IN 1		0.8		10.8	~~A3V~~ F8							
	HR 5107	13 [illegible]	-6 28				3 EXPOS TIME 5						3.07	A3V							
	5185	13 [illegible]	+17 37			[illegible]	12						4.91	F6V							
1563	HR 4763					07.35	4 EXPOS TIME						2.22	F2V							
	HR 4908					08:41	4 EXPOS TIME 16						3.45	F0V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1978	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1563	HR 5036			18 Feb		07:44	30s 30s	0:24E	2' PART [illegible]				[illegible]	B2 IV							-1
	HR 5134				[illegible]	07:54	2m	0:37E					7.68	M6 III							1
	5171				07:58	[illegible]	3m	0:37E					5.07	[illegible]							3
	5281					[illegible]	45s	[illegible]					6.52	B[illegible]							5
1564	5407					08:21	10s	[illegible]					4.81	B3 IV ~~[illegible] IV~~							-3
	5430					08:26	7 FAST 08s	00:40E					4.[illegible]	F6 III ~~[illegible] IV~~							-3
	5409					[illegible]	[illegible] 18s	00:47E					[illegible]	[illegible] IV							-1
	5447						12s						4.51	F2 V							+1
	5[illegible]4					08:49	6 TRAILS FAST 12s						[illegible]	[illegible] V							+3
	5[illegible]					08:52	6 TRAILS FAST 15s	1:17E					5.3	[illegible] I							+6
1565	NGC2353-5	7 13.5	-10 16	19 Feb	[illegible]	01:18	26	[illegible]			[illegible]		10.[illegible]							F(+Cnw)	0
	-112				01:18	01:56	36	[illegible]			[illegible]		11.3								-5
	-110				01:60	02:36	36	[illegible]			0.8		11.[illegible]								[illegible] -3
	NGC2362-1	7 17.7	-24 53		02:44	03:23	38	[illegible]			[illegible]		11.[illegible]								-01
	-20				03:24	03:31	0	0:25W			1.2		8.65								+2
	-30				03:32	03:32	20m	[illegible]			0.6		10.[illegible]								[illegible]
	-46					03:34	4 4s 50s				1.2		6.[illegible]								+3
	-23					03:35	8 TRAILS 6s				1.2		4.25								+6
1566	NGC2546-282	08 11.1	-32 34		04:14	04:25	10	01:25W			[illegible]		7.66								-5
	-277				04:26	04:33	6	01:33W			0.8		8.46								-5
	~~-47~~ ?				04:34	04:41	16	01:41W			0.8		~~[illegible]~~								-7
	-265				04:43	[illegible]	24	2:[illegible]			0.6		10.97								1
	-259				05:07	[illegible]	6	2:14W			[illegible]		8.14								3
	-257				05:17	[illegible]	5	2:23W			0.8		8.75								5
	-112				05:25	05:37	10	2:39W			0.8		9.52								6
1567	NGC2670-1				[illegible]	06:08	7	[illegible]			1.2		8.01								0
	-21				06:11	06:25	16	2:53W			0.8		10.[illegible]								-5
	IC2581 -55				[illegible]	07:17	42m	2:02W			0.6		11.4								-3
	-1				07:18		9 TRAILS 12s				1.2		5.1								+2
	-4				07:20	07:32	12m				0.5		9.[illegible]		~~[illegible]~~	[illegible]					+6

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1978	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1500	[illegible]	17 16.7	-42 55	19 Feb	07:57	08:01	10m	03:[illegible]E	2" [illegible]		0.8		9.55					IIaD		[illegible]	[illegible]
	-109				08:14	08:45	30	03:22E			0.6		11.03								-3
	-22				08:46	09:28	40	02:38E			0.6				N.+	2s					-1
1501	[illegible] -4	7 21.8	-32 00.3	20 Feb	00:29		50s	01:38E			1.2		6.60							[illegible]	-1
	-7	[illegible]	-31 53.3			00:35	20s 16s				1.2		5.27								-3
	11	7 22.7	-32 09			00:35	22s 20s				1.2		5.57								-1
	Russ-991	8 11.6	-32 32		00:42	01:14	30m	01:40E			0.6		11.[illegible]								+1
	-994				01:14	01:46	30	01:12E			0.6		11.[illegible]		N.+	2s				[illegible]	+6
~~1570~~	[illegible] 475	8 11.1	-37 34		01:50	01:54	4m	01:[illegible]E			1.2		~8.[illegible]								+[illegible]
1570	-90				02:13	02:28	14	00:28E			1.2		9.60								-[illegible]
	-76				02:31	02:46	14	00:10E			0.8		9.95								-[illegible]
	-201				02:48	03:03	14	0:07W			1.2		9.55								-1
	SLS 1106	8 36.9	-43 28		03:10	03:41	30	0:18W			0.6		11.20								+1
	1109	8 37.7	-45 50		03:47	03:50	3	0:			1.2		8.03								+3
	1112A	8 38.3	-46 09		04:01	04:09	8m 10				0.8		9.61								[illegible]
	1112B				04:09	04:21	12				0.8		10.8 [illegible]								[illegible]
1571	1111N	8 38.3	-46 09		04:43	04:52	8				1.2		8.99								-[illegible]
	1111S				04:52	05:00	8	01:38W			1.2		9.00								-3
	1105	8 36.5	-46 11			05:08	150s				1.2		7.7								1
	~~[illegible]~~						26m						11.04								[illegible]
	[illegible]3	8 37.[illegible]	-46 [illegible]			05:14	8 [illegible] 7s				1.2		[illegible]								+1
	1117	8 40.4	-45 11		05:20	05:27	7m	02:03W			1.2		[illegible]								+3
	1189	8 50.4	-45 35		05:36	05:48	12				1.2		9.36								+5
	1180	[illegible]	-47 [illegible]		05:52	06:03	10	[illegible]			1.2		9.00								+6
1572	1199	8 53.4	-47 24		06:19	06:34	15	02:58W			0.8		10.11								-[illegible]
	1202	8 54.2	-47 30		06:36	06:44	7	03:07W			0.8		9.22								-1
	1203	8 [illegible]	-47 19		06:46	06:56	10	[illegible]:18W			1.2		9.04								-[illegible]
	1212	8 56.1	-46 57		06:58	07:12	14				0.8		9.91								+1
	1216	8 57.1	-47 38		07:14	07:23	7	03:42W			0.8		9.28								+1
	1247	9 07.5	-46 09		07:26	07:33	6	03:42W			0.8		9.05								
	1251	[illegible]	-43 [illegible]		07:35	07:46	1	0:30W			0.8		9.57								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	1978 R.A.	1978 DEC.	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS	
1573	HR 5121			Feb 20	08 00	08 11	10m	00:19E	2" CLEAR		1.2		8.07	G8 Ia							T=16 W=0 H=43	-5
	5338						12 TRAILS 8s	0:43E					4.31	F6 III								-3
	5867					08.20	6 TRAILS 5s	2:09E					3.73	K2 V								-1
	5733					08:23	18 TRAILS 6s						4.33	F6 IV								+1
	5742					08:28	24s 26m	0:12E					5.38	K2 III								+2
	5953					08:32	1 TRAIL 12s						2.21	B0 IV								+6
1574	6134				08:40		3 TRAILS 3s	2:30E					2.88	M1 IG								-5
	6142					08:47	50s 21s	2:12E					5.64	B1 Ia								-3
	6155					08:51	12 TRAILS 12s	2:26E					4.87	B0 Ia								-1
	6299					08:55	22 12s	2:45E					4.5	K2 III G								+1
	6498					09:01	42s 25s						3.09	M2 II								+4
	6378					09:04	2 TRAILS	2:50E					2.49	A2 V								+6
1575	6556					09:18	4 TRAILS	2:02E					2.23	A5 III								-5
	INCREASE - 5C				09:24	09:42	18m 24s	2:17E					10.67		Not	2"					T=3 W=5 H=43 Lt N	-1
	SKY				09:42	09:48	6m															
1576	SLS 1342	9 43.7	-50 43	Feb 21		00:19	30s 30s	~4:00E			1.2		5.99				II-D	10m M-5	F(Cam)			-5
	1332	9 37.4	-47 34		00:27	01:03	34m				0.8		11.01								T=13 W=5 H=36	-3
	1328	9 35.6	-52 42		01:05	01:21	14	02:58E			0.8		10.02									-1
	1327	9 34.9	-49 08		01:22	01:44	20	02:34E			0.8		10.33									+1
	1323	9 33.1	-53 31		01:47	01:51	4m	02:25E			1.2		8.21									+3
	1317	9 30.1	-51 19		01:56	02:16	18	01:37E			0.8		10.22									+5
	1316	9 29.8	-51 33		02:18	02:37	18	01:35E			0.8		10.20								PLATE STUCK IN DK	+6
1577	INCR 2189-14				03:40	03:49	9				1.2		9.98									-2
	NGC 1546-44				04:02	04:16	14	1:23W			0.8		9.13									-1
	NGC 3324-2				04:28	04:33	5m	0 45W			1.2		3.34									5
	-5				04:34	04:42	8	0 30W			0.8		7.33									2
	B0 II-2				04:53	05:19	22	02:10E			0.8		10.11									4
	-5				05:18	05:52	32	00:30W	2"		0.6		11.20									6
1578	HD 22484	3 35.5	-00 31	Feb 22	05:34:00	00:35:30	3 TRAILS 90s			3.42	1.2	12/20	6.80	DC1			II-D	15m M-5	F+Cam		B Cloudy thin	-5
	B				00:43	00:57	14m				0.8		1.82	K6 V								-3

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS	
1578	HD 224868 (A)	3h 35.5m	00° 31′	FEB 22	1:06:45	1:09:30	~~3 minutes~~ 165s			3.42	FULL WIDTH	120/7.0	A+B 6.80	DC9(A)	NeA	2s	—	IIaD	15m M-5	F+Cw		+1
	"	"	"		1:10:00	1:12:30	~~9 minutes~~ 150s	3:00W		3.42	FULL WIDTH		B 9.82	K6V(B)							T=18 W=0 H=45	+5
1579	NOVA SERPENS?	1950! 17h49.0m	1950! −14°43′	MAR 16	09:05	09:35	30m/700 WEAK	—	2"/clear	3.42	100/0.6	120/7.0	10?	O-B	NeA	2s	—	IIaD	15m M-5	Cw	H=34% T=14°C	−3
1580	NOVA SERPENS?	1978 17h49.0m	1978 −14°43′	MAR 17	07:50	08:50	60m/LIGHT COVER ON!	—	2"/clear	"	"	"	"	"	"	"	—	"	"	Cw	H=51% T=14°C	−3
	CURIOUS OBJECT	1978 17h50.6m	1978 −14°45′																			
1581-1	NGC 2571-8	8 18.1	−29 40	MAR 18	00:10	~~00:51~~ 2:40	4.8 /40	3:18W	2"/cirrus	3.42	100/0.8	120/7.0	11.28							F+Cw	H=30% T=14°C	−5
1581-2	Bo 10 − 14	" 41.3	−31 00		00:56	01:22	26 /26	1:19W	"				10.27									−3
	−6				01:24	01:53	9 /8	1:50W	"				7.35		NeA	2s						−1
1582	NGC 3572-2	11h29.5	−60 08		01:58	02:12	14 /14	2:24W	"				9.77									−5
	SK 12-111	11 12.1	−58 45		02:20	02:44	24 24	2:30W	"				12.6									−3
	−114				02:46	03:03	17 /15	2:48W					10.1									−1
	−134				03:06	03:17	11 /10	3:05W					9.5									+1
	4				03:18	03:32	14 /14	3:19W	"				9.82									+3
	−1				03:33	03:37	4 /4	3:24W					8.68									−1
	−2				03:39	03:43	4 /3.5	3:30W					8.51									−1
1583	NGC 5749-6	14 47.1	−54 26		03:59	04:14	15 /14	0:25W	3-4/ "				7.84									
	−16				04:16	04:45	29 /24	0:57W	4"				10.24							wispy cloud + wind + dome rumbling.	H=26% T=16°C	−3
1584	WAT-6-3	18 38.2	−46 08	MAY 18/19	23:39	00:12	33 /32	02:36W	1" thin cirrus	3.42	100/0.8	120/7.0	10.8							F(4Cw)	H= T=	−5
	−10			MAY 19	00:14	00:19	5 /5	02:44W	1-2/clear		/0.7		9.2								N=2	−3
	−9				00:20	01:02	42/40	03:25W	1-2/ "		/0.6		11.4									−1
	IC2581 −71	10 26.6	−57 32		01:07	02:21	72/ 70	02:58W	1-2/ "		/0.6		12.0									+1
	NGC 4103-333	12 05.6	−61 07		02:25	02:40	/12	01:37W	2"		0.8		9.9									+2
	−6				02:41	02:53	/12	01:51W	2"		0.8		9.92									+6
1585	−5				03:07	03:23	15	02:20W	2"		0.8		10.06									−5
	−4				03:24	03:41	16	02:39W	2"		0.8		10.03									−5
	−8				03:42	03:54	~~20~~ 12	02:52W	2"		0.8		~~4.36~~									−1
	−38				03:56	04:15	18	03:12W	2"		0.8		10.3									+1
	−7				04:16	04:36	18	03:32W	2"		0.8		10.25									+3
	−8				04:36	04:41	8	03:42W	2"		0.8		4.38									+6

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1586	NGC 6383F-375	17 24 0	-32 50	May 19	05 24	05 29	3.5	05 3 E	2"/clear	3 42	100/0.8	120/70	8.5					IIaD	15m M-S	F(+Crw)	T=16 H=32 M=0 -5
	-478	17 24.2	-33 24		05:44	06:25	40	0:03 W	2-3		0.8		11 1								-3
	-476	17 23.3	-33 23		06·28	06:42	12	00:16W	2-3		0.8		9.8								-1
	-1547	17 24.1	-33 52		06: 51	07:09	18	0:38 W	3		0.8		10.1								+
	-432				07:19	08:11	50	01:38W	3		0.6		11.6								+3
	-44	17 24.6	-32 38		08:13	08:21	6	01:50 W	3		0.8		9.0								+6
1587	NGC 6383-9	17 33.2	-32 31		08:32	09:11	36	02:42W	3		0.8		10.78							T=16 H=32 M=0	-5
	-128	17 33.6	-32 26		09.13	09:35	20	03·05W	3		0.8		10 35								-3
	-241	17 33.4	-32 41		09:36	09:55	18	03:26	3		0.8		10.18								-
	-301	17 33.4	-32 42		09:56	10:10	14	03:42W	3		0.8		10.03	OB?							+1
	-1	17 33.0	-32 33		10:11	10:11	25s	03:43W	2		1.2		5 72	07V+07V							+2
	Neptune	17 06.2	-21 22		10:16	10:19	2½	04:22W			1.2		7 7								+4
	Ceres	19 46.2	-25 14		10:24	10:28	4				1.2		8 1								+6
1588	IC 2581-5	10 27.0	-57 27	20 MAY	23 37	23 47	10	0:30W	2"/clear		100/1.2		9 72					IIaD	15m M-S	(Crw)	-5
	WAT-L-4	8 38.2	-46 10	20/21 "	23 54	00 40	STOPPED (CLOUD) 46/60	3 12W	2"/ hazy light thru		26 SKY 1.6 46 " x 0.3		11 88	waste: slightly contaminated							-1
	NGC 6383-12	17 33.1	-32 31	21 MAY	05:53	06:07	14	0:15E	1.2 clear		"		9 96	B1 V							-1
	-62				06·10	06 52	4c	00:30W	"		"		11 1	A1 V							1
	-88				06:56	07:01	4	00 58W	2-3		0.8		5.6v	OD							3
	-143				07·02	07·53	50	01·32W	2		0.8		11.08	K0 II-III							5
	-154				07:55	08 37	40	02 16W	2		0.8		11.02								6
1589	NGC 6383F-677	17 26.7	-34 30		08:49	09:29	40	05:14W	2		0.8		11.1	OB+							-5
	-676	17 26.1	-34 32		09.30	09·55	22	0:38W	2		0.8		10 5	B5							-3
	-872	17 26.0	-35 49		09·55	10:17	22	04 03W:	2"		0.8		10 5	OB+							-1
	-673	17 24.6	-34 32		10 18	10:25	7	04:25:W	2"		0.8		9.1	B2:						T=14 H=27 M=C	1
	-576	17 24.3	-34		10 27	10 40	15	04 46 W	2"		1.2 SKY 0.3	lightly contaminated	10 3	B2	Nd4	2s				DAWN = slightly weak.	3,6
	DAWN	17 24.3	-34		10 46	10 41	6	04 46 W			1.2										5
1590	Slock B-3	1 12.3	-58 46	21 MAY	23 06	23:25	16	00:34 E	2" clear		0.8		10 07								-5
	-119				23:28	23:54	24	00 05 E			0.8		10.6								-3
	-6			21/22 MAY	23 56	00:22	24	00:23 W			0.8		10 1								
	-7			22 MAY	00 :23	00:54	30	00:56 W			0.8		10.7								

NUMBER	OBJECT	R.A. 1978	DEC 1978	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1590	Stock 13-19			22 May	01 03	01 14	10	1 17W	2" clear	3.42	100/0.8	120/70	9.61					IIaD	15 m.s	F	+3
1591	NGC4103-330	12 05.6	-61 07		01 34	01.52	18	[illegible] W	2		"		10.3								-5
	-7				01:54	02 12	18	1 21W	2		"		10.25								T=14 H=30 W=0 -3
	-8				02 14	02:24	8	1 32W	2		"		9.38								-1
	-9				02:25	03:09	42	2:17W	1-2 "		"		11.13								T=14 H=28 W=10 1
	-5				03 10	03:25	15	2 34W	2 "		"		10.06								3
	-4				03:26	03 41	15	2.51W	2 "		"		10.08								5
	-2				03 43	03:57	14	3:07W	2-1 "		"		9.86								6
1592	NGC6383F-751	17 33.1	-35 17		04 24	05 17	54	1:02E	"		0.6		11.7	OB+							-5
	-372	17 23.1	-32 24		05:22	05:33	10	00:40E	1"		0.8		9.7	B3							-3
	-275	17 24.7	-32 04		05:38	06:04	24	00:07E	1-2		"		10.6	B5							-1
	-276	17 24.2	-31 58		06:06	06:20	14	00:10W	1-2		"		10.0	B4							1
	-272	17 21.6	-31 55		06:25	06:39	14	00:29	1-2		"		10.0								3
	-161	17 26.8	-31 19		06:48	06:49	1	00 37W	2				7.0								5
	-165	17 28.4	-31 23		06:54	07:02	8	00 48W	2				9.4	A							6
1593	-264	17 28.5	-31 58		07:20	07:34	14	01:20W	2				10.0	B5:							-5
	-368	17 28.0	-32 12		07:36	07:50	14	01:37W	2				10.0	B6							-3
	-365	17 27.8	-32 27		07:53	08:07	14	01:54W	2				10.0	B2							-1
	-314	17 28.2	-32 32		08:09	08:27	18	2:14W	2				10.3	B4							1
	-363	17 28.0	-32 46		08:30	08:46	15	2:33W	2-3				10.1	A3IG:							3
	-350	17 29.5	-32 17		08 51	09:01	9	2:47W	2-3				9.5	A0:							5
	-356	17 29 8	-32 28		09.03	09 15	12	3:00W	2				9.8	17							T=13 H=24 W=0 6
1594	NGC4103 -13	12 05.8	-61 07	23 May	00 16	00 42	24	0:06E	1-2 cirrus				10.61							F	T=15 H=24 W=0 -5
	-14				00:43	01:03	18	00:15W					10.18								-3
	Tr18 -12	11 10.7	-60 33		01 14	01.17	3	01 25W					8.21								-1
	-13				01:20	01:32	10	01:38W					9.70								+1
	-14				01 33	01:40	7	01.48W					9.19								+2
	-19				02:03	02:22	18	02:30W					10.24								+6
	-16				01 41	02 00	14	2 08W					9.97								+5
1595	-15				02:42	03:02	18	3:10W					10.25								-5

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T. 1978	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
1595	Tr18- 18			23MAY	03:06	03:27	20	1:35W					10.33							F	
	1	" 09.6	-60 35		03:28	03:35	6						8.78								-1
	CH Car				03 37	03 53	16?						9.8?								+1
	NGC 5316- 18	13 52.3	-61 45		04:05	04.21	18	01.46W					9.89								+3
	101				04:22		16						10.17								+5
1596	NGC2571-11	8 18.1	-29 41	26 25MAY	23:17	00:29	70	03:40W	12" clear		0.6		11.93							F	T=12 W=0 H=29% Clouds present -5
	SLS 122: WAT7-1	8 40.7	-46 13	26 MAY	00 42	01 22	40	04.27W			0.8		11.1								-3
	SLS117	8 40.0	-46 02		01.28	01 40	16	04 55W			0.8		10.1								-1
	WAT8-2	8 39.4	-46 05		01:48	02 02	14	05:17W	2-3 "		0.8		10.								works like a cluster PLATE NO: Down 1
	HR				02 12		8?				3"		~5	B4 V						2 FAST	mistaken for Nova by image-assistant 3
	"										"									SFAST	4
	"										"										5
	"					02:16					"										6
1597	NGC4103-3	12 05.3	-61 08		03:00	03.50	50	03 15W	2 CLOUD IN N		0.8		11.38								-5
	NGC 5316 -1	13 51.9	-61 35		03:54	04:09	12	01 47W			0.8		9.37								T= 3 W=3 -3
	-2	13 52.0	-61.35		04:10	04:14	4	01.51W			0.8		8.3								-1
	-31	13 52.0	-61 44		04:16	05:00	42	02 38W	2½ "		0.8		10.77								+1
	~~-76~~				05.02	15 28	26	03 07W			0.8		10.88								+3
	-136				05:30	05:56	26	13 35W			0.8		10.70								+5
1598	NGC6583-3	17 32.0	-32 33		06:11	06 37	24	00 32W	2 CIRRUS		0.8		10.00								T=10 W=4 H=16 -5
	~~-20~~				06:42	7:32	50 ~~8~~	01.30W	2½ CIRRUS		0.6		11.61								Cirrus comes & disappears -3
1599	WAT8-2	8 39.1	-46 02	27MAY	~~00:02~~ 05 39	~~00:17~~ -46 02	14	03 12W	2½		0.8									F+G	SNOWED VISITORS OBJECTS FIRST (double?) -5
	-1	8 39.2	-46 02		00:18	00:36	18	03.32W	2		0.8										T=9 W=6 H=41 -3
	~~IC~~ 2581-8	10 26.3	-57 32		00:52	01 22	30	02 58W	2½		0.8		10.82								-1
	~~IC~~ 2581-11				01.28	02:42	70	03.40W	2½		0.6		11.95								+1
	NGC 3590 -1	11 11.9	-60 40		02 48	03 12	24	03 33W	2½		0.8		10.57								7 on slit 60 Instrument blur +3
	Hogg12- 1	11 11.0	-60 39		03 14	03:40	24	04.00W	2		0.8		10.56								Clip +5
1600	NGC 5316-136	13 51.8	-61 47		03 54	04:20	26	02 03W	2½		0.8		10.70								T=7 W=3 H=40% -5
	-7				01.24	04:30	5	02 13W	2½		0.8		8.93								-3
	-35				04:31	05:23	46	02:06W	2-4		0.8		10.91								-1

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T. 1978	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS.	REMARKS
1601	NGC 6383-24	17 33.2	-32 33	27 May	05 41	06 41	60	00:42W	3' HIGH HAZE		0.8		11.53							F(+Cu)	T=7 W=5 H=389 near fog V. high -5 PLATE 41 OSCEOLA
1602	-16				06:55	07:33	36	01:24W	3' HIGH C-FOG				10.39								W=15-20 T=8, H=240 -5
1	NGC 6383F-541	17 33.3	-33 28		07:36	08:48	60	02:49W	3' "				11.5								-3
	-644	17 35.0	-34 08		09 00	10:00	50	03:59W	2-3 .				11.4								T=7 W=10 H=41 -1
	-647	17 36.8	-33 54		10:02	10:35	34 (40)	04:36W	2-3 "				11.0								DAWN 0 33 1
1603	G140- 3	07 21.3	-32 00	27 May	23:19	23:41	20 22	03:55W	3-4 clear				9.67							F(+Cu)	T=7 W=10 H=46 -5
	NGC 2670 - 5	08 +48	-48 42	27/28 May	23:45	00:25	38	03:18W	3 clear				10.62								-3
	NGC 3324 - 12	10 37.1	-58 35	28 MAY	00:43	01:47	60	02:49W	2-3 .				11 41 10 57								-1
	-16				01:49	03:09	80	04:09W	2½ .		0.6		12.14								1
1604	NGC 6383 - 21	17 33.0	-32 33		03:30	05:05	155/150	00:10W	2.5 "		0.6		12.78							Cu(+F)	-3
1605	-20				06:27	07:41	60	01:46W	2-3 "		0.8		11.57 11.59							F(+Cu)	T=8 H=39 W=10 -5
	NGC 6383-F-643	17 34.7	-34 23		07 48	08:52	50	02:57W	3 "		0.6		11.6								-3
	-654				08:56	10:06	50	04:12W	3 .		0.6		11.6								-1
1606	WAT6 - 13	08 38.1	-46 06	29/29 MAY	23:17	00:39	72	03:44W	2" clear		0.6		12.27							F(+Cu)	T=8 H=43 W=10 -5
1607	NGC 3324 - 2	10 36.5	-58 30	29 MAY	01:04	01:07	3	02:12W	2 .		0.8		8.34								Cu-N> -5
	-5				01:10	01:18	8	02:24W	2"		0.8		9.23								-3
	Bo11 -28	10 46.1	-60 00		01:44	02:06	22 [illegible]		2 "		0.8		10 51 [illegible]								-1
	Stock 14 -17	11 43.2	-62 22		02:16	04 18	120	04:15W	2 "		0.8		12.19								1
	NGC 6322 -21	17 16.7	-42 53		04 24	05 30	54	00:04E	3 [illegible]		0.8		11 41								+4
1608	NGC 6322 -50 -42				05 31	06:31	30	00 57W	3		0.8		10 07 [illegible]								T=7 H=43 W=10 -5
	-72 -60				06.36	07 46	66	02:12W	3		0.6		11.98								-1
	-A				07 48	10 32	~170	~4:50 W	2		0.8		12.39								1.9 W N T: 8 W: 10 H=64 -1
1609	NGC 3324 -31	10 36.5	-58 30	29/30 MAY	23 35	02:05	150	03:12W	2' clear		0.6		12.04							F(+Cu)	T: 8 W: 10 H=69 -5
	IC 2944-2450	11 39.4	-63 15		02 08	02 19	10	02.23W	"		0.8		7.3								-3
	-2459	11 41.2	-63 15		02 22	02 32	1:11 34	02:07W	"		0.8		10.5?								-1
	-2443	11 38.7	-63 21		02 04	02 36	32 / 30	03:44W	2.5 "		0.8		10.6								1
1610	NGC 5606-3238	14 23.4	-59 35		03 31	03 37	6	01:17W	2½ .		0.8		9.1								-5
	NGC 6322 - 40	17 16.7	-42 55		04 04	07:04	180 /150	01:31W	. "		0.6		12.64							Cu (+F)	-3
	-21	17 16.4	-42 53		07 08	08:12	50	02:42W	.		0.8		11.61							F (+Cu)	-1
	NGC 6604 -X	18 16.2	-2 14		08 25	08:25	3	01:58W			0.8		8.25								+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	1978 R.A.	1978 DEC	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP. KIND	COMP. EXP	CALIB	EMUL	DEV	OBS	REMARKS
1610	NGC 6604 - Y	18 16.1	-12 14	30 MAY	08:31	09 09	36	02 42W	3" clear		0 8		10.74							F	T= - +3
	-MV3				09 12	09 33	20	03.04W	3-4 "		0.6		10 39								contam by X T5
1611	-H				09 44	[illegible]	42	03 51W	4" "		0 8		10.75								-5
	- E				10 24	10 40	18	04.10W			SKY & 0.8		9.35								DAWN -1
1612	NO. 13 NGC 2670	8h44m.8	-48°42'	6 JUN	00 17	01:03	146	04:31W	4"/SEMI CLEAR	3.42	100/0.6	120/7.0	10.95					IIaD	15m MS 67°	FITZ LUIKEN CRW	T=11° H=46% W≥20
1613	NGC 3324 -14	10h36m.9	-58°29'	7 JUN	23:53	01:27	190	03:08W	3"/clear	"	"	"	~11.94					"	"	LUIKEN CRW (F)	T=8° H=60% -3
1614	NO. 14 NGC 3603	11h14m.2	-61°09'		02:18	03:33	175	04:36W	"	"	"	"	11.74					"	"	"	-5
	NGC 6383 -44	17h33m.0	-32°33'		04 11	04. 21	8	00.55E	3"/ "		0.8		9 0 6	B2 III						F CRW	-3
	-7				04:28	07:04	150	01:49W	2-3/ "		0.4		12.90							F (CRW)	T=7 H=66 W≥15 -1
	-66				07:06	10 08	180	24 52W	2"/ "		0 4		13.23							"	+1
1615	HD 196524					10:26	4s 3s	2.08W			0.8			F5 III						"	-5
	210027					10.30	7s 5s	0:43W			0.8			F5 V						"	-3
	215648					10:33	10s 7s	0:06W			0.8			F6 III+IV						"	-1
	218356					10:38	40s 30s	0.09E			0.8			G8 IG						"	+1
	HR 8403					10 43	30 20				0.8			B4 IVn						"	+3
1616	NGC 3324-30	10h36m.6	-58°29'	8 JUN	23:37	01 45	120	03:39W	2"/clear	3.42	100/0.4	120/7.0						IIaD	15m-MS 67°	F CRW	T=7 H=65% -5
	NGC 5316 -135	13 50.6	-61 57	8 JUN	01:52	02:20	24	00:53W			0.8		10.03							F (+CRW)	-3
	-45				02 22	03 42	66	02 14W			0.8		11 14								-1
	NGC 5606 -246	14 26.7	-59 28		03:44	04:04	20				0.8		10.2	OB							+1
1617	NGC 6383 - 5	17 33.0	-32 33		04:22	07:24	180	02:12W			0.4		13.29							F+CRW	-5
	-43				07.24	10:26	180	05:34W			0.4		13.20							F (+CRW)	-3
1618	NGC 3324-20	10h36m.7	-58°38'	9 JUN	23.20	00.50	190	02:39W	2"/clear	3.42	100%0.6	120/7.0	12.22	B7?				IIaD	MS 15m-67°	(F) CRW	T=8° H=50% -5
	-15				01:00	02:12	72/70				0.4		12.15		NoA	2s					-3
1619	NGC 5606 -1	14 26.6	-59 33		02:29	02:36	6				0.8		9.04	B0 IV						F1+CRW)	-5
	-3248				02:38	02:58	18	00:57W	2½"/clear		0.8		10.2								-3
	NGC 6322 -81	17 166	-43 00		03 04	05:30	146	00:39W	3"		0.4		12.87								-1
	-82				05:30	05:33	3	00:43W	3"		0.8				NoA	2s					1
1620	NGC 6604 -96	18 16.1	-12 14		05:54	06 20	26	00:28W	3"		0.8		10.6								-5
1621	- Q				06 36	07 38	60	01 48W	3"		0.6		11 62								-5
	-A				07:40	08:38	56	02:48W	3"		0.8		11.23								-3

NUMBER	OBJECT	R.A. 1978	DEC 1978	DATE UT 1978	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1621	NGC6583-65	17 33.1	-32 35	9 June	03 42	07.50	60		clouds thin				11.36V	B9II:						F(+Gw)	M=8.9 M=13 M=14 -1
1622	NGC 3824-33	10h 36m.2	-58° 33'	10 June	00:00	04 12	12 /120	3 02W	2"/clear	3.42	100/0.6	120/7.0	12.59					II-D	MS 15	ORW (F)	T=8° M=37.0 -5
	NGC 3617 +80	14 27.3	-60 35		02 18	02 58	40	1:02W			0.8		10.56	M2II?						F(+Gw)	-3
	-29				03 02	03 30	28	1.33W					10.71								-1
	-31				03 32	03 59	26	2.01W					10.57								T=8 M=38 N 1
	-153				04:00	04 14	14	2 16W					9.90		N&A	2					3
1623	NGC 6025 -1	16 01.8	-60 27			04 32	70° 50°						7.35								-5
	-2				04.34:40	04 52 20	150°	1.07W					8.15								-3
	-10				04.42	05 18	36	1.47W					10.99								-1
	NGC6383- 60				05:40	08 42	180	3.40W	2"		0.4		13.3								1
	-89				03:42	10 28	106/100	5:16W	2½'		0.8		12.1		N&A	2					M=10 M=16 3
1624	SL-13 -10	11 12.8	-38 48	10 June	23 13	00 15	60		2½ Bright image 640	3.42	0.8		11.45							F	M=13 M=14 -5
	TY18 -11			11 June	00 18	01 10	36	2.33W	2½-S 10% W		0.6		10.89								1
	NGC 3316 -72	13 52.3	-61 50		01:16	03:12	110		2½				11.43		N&A	2					1
1625	NGC 6025 -8	11 02.0	-60 25		04 11	04 21	10 8	0.55W	4"				9.41								M=5 M=15 -5
	-7				04:22	04:27	4	0.59W	4"				8.08								-4
	-14				04:28	04:48	20	1:21W	4-3				9.89								-2
	-13				04 48	05:02	14	1.33W	3-4				9.67								-1
	-6				05 04	05:12	8	1.45W	4				9.10								+1
	-16				05:14	05:32	18	2:05W	4 HIGH WIND				9.93								+2
	-11				05:34		5 / 5	2:15W					8.38								+4
	-12				05:41	05:51	10	2.23W					9.32		N&A	2					+5
1626	NGC 2890-13 WAT 6 -14	08 45.1	-48 46	11 June	22 55	23 33	36		2" CIRRUS NW		0.8		11.0							F	M=8 M=10 M=50 -5
	WAT6 - 4	08 38.2	-46 08	9/11 June	23:36	00:40	60	4.35 W	2½		0.6		11.8								-3
	NGC 3572 -24	11 09.5	-60 08	12 June	00 46	02:06	2.1 66	3:34W	2-3		0.8		11.69								-1
	Hogg 10 -2	11 10.3	-60 18		02:09	02:43	30		3		0.8		10.63								1
	12 -2	11 11.4	-60 40		02 47	03 06	16		3		0.8		10.36								+3
	Cr240 -27	11 12.6	-60 36		03:08	03:22	14		3-4		0.8		9.77								+5
	-7	11 12.8	-60 38		03:23	03:28	4½	4.54W	3		0.8		8.53								+6
1627	Mengel 3	16 15.8	-51 56		04:03	04 46	30+10+3				2.6										4 small grade 11 plates -3,4,3

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 209
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC 1978	DATE U.T. 1978	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1628	NGC 6383 -22	17 33.2	-32 36	12 June	05 08	07.02	110	02.08W	1½" clear				12.83							F	-5
	-25				07.02	08:52	110	03:58W	1" "				12.77								contam by #16? -3
	NGC 6530 - 9					09.13	1m						7.09								[illegible] -1
	-9	18 02.6	-24 20			09.38	1m	04:15W			sky+ 0.8		7.09								+4
1629	-3				09 51		6m				sky+ 0.8		8.85								-5
	-2					10 01	30s 1m		3-4				7.28								-3
	-5				10.04	10:36	32/30	05:00 W					10.51								+1
	~~-42~~						~~8~~						~~9.28~~					sky [illegible]	[illegible]		[illegible] +4
1630	Hogg 10 - 2	11 10.4	-60 20	12 June	23 38	00.04	26	1:33W	2" clear		0.8		10.63							F	-5
	-3			13 "	00 06	01:08	60	2.48W	2" "		0.6		11.63								recontam by #1? -3
	Hogg 11 - 12	11 10.9	-60 20	13 June	01.09	02.05	50	3.36W	2" "		0.6		11.31								-1
	Hogg 12 - 3				02 07	03 03	50		2 "		0.8		11.20								[illegible] +1
	Cr 240 -16	11 12.0	-60 37		03 04	03 12	6½		2 "		0.8		9.08								+3
	-13	11 9.7	-60 28		03:14	03 19	5½	4 51W	2½ "		0.8		8.76								+5
	-35	11 09.0	-60 28		03 21	03:51	26		2½ "		0.8		10.32								Cast +6
1631	Mz 3	16 15.9	-51 48		04 25	06 05	100	2:32W	2½ "		open wide										[illegible] -4
	FL330 :6383F 34-206 SLS 4244	17 34.3	-32 17		06 23	08 23	110	3.32W	1" [illegible]		0.8		12.2								+1
	NGC 6383F-335				08 28	08 32	80		CLOUD!		0.8		11.9								
1632	Cr 240 -2	11 10.8	-60 12	13 June	22 32	22 52	40s		2½ clear		0.8		6.02							F	-5
	-18	11 10.2	-60 12		22.58	23 04	6m	0:38W	2½		0.8		8.98								[illegible] -4
	-28	11 07.8	-60 04		23 08	23 21	12m		2½		0.8		9.76								-2
	-12	11 07.2	-60 07		23 22	23 28	6		2		0.8		8.71								-1
	-5	11 07.3	-60 07		23 28	23 32	3½		2		0.8		9.28								1
	-17	11 08.4	-60 13		23 34	23 40	6		2		0.8		9.11								2
	-36	11 08.1	-60 15		23 41	00 06	24		2		0.8		10.33								4
	-14	11 7.7	-60 15	14 June	00.07	00 14	6		2		0.8		8.99								5
1633	-33	11 7.8	-60 20		00.24	00.44	18	2:22W	2		0.8		10.19								-5
	-22	11 8.7	-60 20		00 45	00 56	10	2 33W	2		0.8		9.49								-4
	-37	11 8.7	-60 24		01:00	01.36	28						10.69								-2
	-34E	11 8.5	-60 24		01.39	02.20	40						10.23 +.75								-1

NUMBER	OBJECT	R.A. 1978	DEC. 1978	1978 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1633	G240-34W	11 8.5	-60 24	14 June	02.20	03:08	40		2-3 clear		0.8		11.0							F	+1
	-30	11 8.6	-60 26		03:10	03.27	16						9.94								+2
	-11	11 10.5	-60 19		03 29	03.35	5						8.47								T=12 W=10 H=32 -4
	-4	11 10.5	-60 19		03.35	03.38	2½	5.13W	3' clear Cirrus-N				7.87		NeA	2s					+5
1634	NGC6025-15	16 01.5	-60 26		04:35	04.57	18		3' Cirrus		0.8		10.03								-5
	-21				05:00	05:32	30		"				10.60								-4
	-22				05.34	05:44	8	2 28W					9.18								-2
	-23				05.44	06:36	36	3:22W	3' Cirrus all over				10.75								T=11 W=20 [illegible] -1
1635	G240-1	11 11.7	-60 12	14 June		23 06	10s		3' CIRRUS all over				5.12	F0 Ia							-5
	-10	11 11.7	-60 14		23 10	00:06	50m	1:44W	"				10.47								-4
	-29			15 June	00:13	00:33	16	2:12W					9.90								-2
	-31	11 10.2	-60 21		00:36	01:02	22	2:42W					10.19								-1
	-32	9.8	21		01:03	01:33	22						10.13								+1
	-41	9.4	21		01 34	02 18	38						10.87								+2
	-40	10.8	22		02.22	02.54	30	4.30W	DUST CIRRUS				10.49		NeA	2s					+4
1636	SS 433	19h 10.6m	+4°56'	11 July	03:45	08:15	270/240	3h36m W	CIRRUS	3.52	100/0.4	120/8.0	13.5	RADIO STAR	NeA	2s		IIaD	M-S 15m	Crw	H=35° T=12° -3
1637	α Ser	15h 43m.1	+6° 30'	23 July	23 40	23.40	15s	0h 12m	3' clear	2.90	50/1.2	67/+47	2.64	K2 III [illegible]	NeA	1m	—	IIaD	[illegible]	[illegible]	
	α Ser	15h 43.1	+6° 30'		0003	0004	50s														
1638	Bro 13 A	17h 17.4	-46° 37		0038	0051	13m	0h 40m	3' clear	2.90			5.6		NeA	1m	—	IIaD			[illegible]
	B	" "	" "		0106	0253	107				50/0.6		8.6								
1639	Rub 26 A (east)	20h 49.9	-62° 30		0418	433	20/15	0h 33 E	3	2.85	50/1.2		6.6				—	[illegible]			[illegible]
	B (East)	"	" "		0438	453	30/15	0h 13 E	3"				6.6								15% Cirrus
	h 5319 (east)	22h 10.8	-38° 25		0515	0622	100/67		3-5/[illegible]				7.6								[illegible]
	B (east)				0626	0731	✓ 65	1h 05 W	3-5/[illegible]				7.6								[illegible]
	β Aqr	21h 30.3	-05° 41		0739	0740	✓ 60s	1h 53					3.73	G0 Ia							
	λ Aqr	22h 51.3	-07° 43		0746	0751	✓ 4m 20s						5.38	M2.5 IIIa-b							
	α Ps A	22h 56.2	-29° 45		0756	0756	5s						1.25	A3 V							
	"	"	"		0757	0757	10/5s						"								
	ADS 1394A	1h 44.7	-25° 09		0817	0823	9m 6m		3' clear wind rising				5.4								No Cirrus Temperature 12°C
	B	"			0826	0926	120/60m				50/0.8		8.7								Cirrus by draft twice

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1978	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1640	≈1197 A	14 01 E	-31° 35	July 29	2337	0002	25 / 30		2" / clear	285	50μ/1.2	67/447	6.7		Ne A	60s	none	IIaO	m-s, 15m+ Cy / Mercury		
	B				0006	0148	102 / 120	3h 38 W	2" /		"		7.9						67E cal m cloud		5% cal m
	≈ Sc	16h 34.3	-28° 10		0156	0156	20s, 20s ✓, ?		2" clear				2.3 56	B8 V							T = 3 cal
	11 Her	17h 45 5	+27° 45		0205	0206	90s / 180s		2"				3.41	G5 IV							
	HR 6577	17h 32.9	+13° 21		0211	0225	14m / 28m	0h 41 W	2"				6.2	F6 III							
	K Oph	16h 56 5	+09° 25		0229	0236	90s / 120s		2"				3.20	K2 III							
	Sta 62 (Brite) A	18h 33.1	-34° 51		0244	0336	52 / 95	0h 51 W					7.6								cal m
	(Mod) B				0342	0447	65 / 1	2h 02 W					7.2								inc cal m
1641	IC 270 (Brite) A	22h 46 8	-4° 20		0519	0613	54 / 120	0h 43 E	2" / clear?	probably	50 / 1.2	67/447	7.3		Ne A	60s			Dec tracking – & V. wasted		5% calm
	B				0622	0726	64 / 140	0h 23 W	2" / clear?	variable seeing			7.2								5% calm from guiding irregularities
	h 3527 A	02h 42.6	-40° 37		0753	0808	15 / 40						6.4		?						
	B				0809	0828	19 / 36	2h 27E					6.9								
	2402 A	03h 11.1	-29° 05		0834	0836	2m / 7m		3-4" / clear				3.9						Poor tracking – OK	wind	No cals
	B				0838	0858	20 / 80	2h 23E	3-4" / clear				6.1								Bif cals twice
	HR 1279	04h 06.3	+15° 06		0912	0924	12 / 36	2h 55 E	5"				6.B 4	F3 V							
	X Peg	00h 13.3	+20° 04'		0931	0944	13 / 20	1h 18 W	3"-4"				6.B 58	M2 III							
	β And	01h 08.3	+35° 29'		0951	0952	70s / 5m	0h 32 W	4"				3.B 66	MO IIIa							
642	I 236 A	14h 51.1	-73° 07	July 30	2336	2354	18m / ✓	1h 04E	3" / clear	285	50μ/1.2	67/447	5.2							Cy / Mercury	
	B				2359	0144	2h / 3hr scale	0h 44 W	3"				7.2								
	13860 A	20h 26.1	-18° 17		0153	0157	3½m, 3½m ✓		2" clear				5.2								
	B				0217	0342	5m, 70m / 60m max	0h 52 E	2"-3" / clear		.06		8.7								
	22 Sco	16h 28.7	-25° 04		0353	0356	3m, 4½m ✓ slow	3h 16 W	2"-3"		/1.2		4.B 65	B2 V							
	σ Sco	16h 19.1	-24° 06		0406	0412	6m / slow 8m		3"				5.S 35	A5 II					wind 15 mph		
1643	HR 7164	18h 58.0	-18° 36		0433	0503	30m / 50m	1h 57 W	2"-3"				6.3	G3 III							
	μ Hgl	19h 32.9	+07° 20'		0509	0515	6m, 10m / 10m, ✓	1h 34 W	3"-5"				5.B 60	K3 IIIb							
	16642 (Brite) A	23h 15.5	-01° 43		0552	0756	124m / steady ✓	0h 32 W	3"-5" / cirrus		.06		8.3						wind 15 mph		
	B				0801	0748	107m / 140m	2h 36 W	2"-4" / clear		/.06		8.V 5						wind 10 mph		
	φ Aqr	23h 13.0	-06° 11'		0757	1004	7m / 10m	2h 44 W	3" / clear		.12		5.B 78	M1 III							
1644	R 227 A	13h 55.0	-54° 01	July 31	2338	0012	44m / steady ✓	2h 13 W	2" / clear	2.85	50μ/1.2		6.7		Ne A	60s				Cy / Mercury	
	(Mod) B				0017	0207	45m, 50m / steady ✓	4h 08 W	1-2" / cirrus & wind				7.1		1st Run – 2nd Run –				VFO malfunction – no apparent reason .. OK		

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1978	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	HA END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	h 5084 A	19h 05.0	-37° 05		0221	0229	8m / ✓		3-4 cirrus	285	50μ/1.2	67/447	5.3					IIIa O			50% Contam. cloud (variable)
	(south) B				0231	0241	10m / ✓	0h 57E	3" cirrus				5.5								
	χ Lyr	18h 36.1	+32° 45		0255	0255	10m / ✓, 10m standby		3" clear				0.0	A0 5							5% Contam.
	θ Lyr	19h 15.5	+38 05		0301	0311	10m / 25m	0h 07E	4-5 cirrus				5.7	K0 III							
	δ² Lyr	18h 53.6	+36° 52		0315	0332	15m / 40m	0h 34E	4-5				6.0	M4 II							
1645	ADS 14852	21h 18.8	-27° 24		SPECTRUM NOT TAKEN						50μ / 0.6	67	5.8		NaH	Ca		IIIa C			Mg I, Ca I, Sr I, Ba II, Fe I, CH G-band
1645	ADS 14360 AB	20h 58.3	-05° 42		0417	0443	26m / 50m	0h 09E	3" clear		1.2		6.5								
	(north) A				0502	0533	31m / 1 min	0h 39W	2" clear				6.4								
	B				0537	0624	45m / 1 min		2" clear				7.4								
	ADS 10871 A	1h 18.9	-15° 55		0637	0808	91m / 110	1h 17E	2"-4" clear				8.1								
	(South) B				0813	0943	90m / ✓	0h 21W	2-5 clear				8.5								
	α Tri	1h 51.7	+29° 28		0950	0953	2½m / ✓	0h 02E	2"				3.2	F6 IV							
	ε Tau	3h 47.7	+23° 59		0957	1000	120s / ✓	2h 00E	2"				3.5	B8 III							
	(28) 62 Tau	4h 27.2	+15° 49		1004	1006	120s / ✓	0h 24E	3"				3.57	A7 III							
	ι χ Lep	5h 31.6	-11° 51'		1010	1012	70s / ✓	3h 23E	2"				3.21	F0 Ib							
1646	ADS 9709 A	16h 03.2	-11 19	Aug 1st	0005	0013	8m / ✓	0h 10W	2-3		.2		5.3		NaH	Ca			Cy, IIIa		10% Contam.
	(south) B				0034 / 0036	0047 / 0049	8m, 25m / ✓, slow		4"												H4 3% Contam., H2 10% Contam.
	ADS 11789 A	19h 03.1	-21° 34		0108	0224	76m / ✓	0h 40E	2"-4"		.06		8.3								10% Contam.
	(south) B				0231	0401	90m / ✓	0h 31W	2-4		.06		8.5								10% Contam.
	R 321 A	20h 25.5	-37° 29		0416	0528	72m / ✓	1h 05W	2"-3		1.2		7.6								no Contam.
	B				0537	0727	120m / 240	3h 22W	3"-5"		0.6		8.8								10-3% Cont.
	10 Lac	22h 38.2	+38° 55		0736	0754	18m / 25m, 14m / 20m	1h 16W	5"		1.2		4.8	O9 V							
1647	Δ5 (variable) A	1h 38.9	-56° 18		0815	0830	15m / 25	1h 09E	2-3"		2		6.1		NaH	60"					
	(north) B				0838	0853	15m / 25	0h 45E	3"				6.1								
	χ Aql	22h 04.5	-00° 26		0902	0904	2½m / ✓		3				3.71	G2 Ib							
	θ Cet	1h 22.8	-08° 19		0911	0915	45s / ✓	0h 07E	3"				4.67	K0 IIIb							
	γ³ Psc	1h 08.5	+19° 31		0919	0932	13 / 20	0h 24W	3				4.62	G8 III							T: 14° w: 20% w: 10 μ
	HR 1279	4h 06.3	+15° 06		0939	0955	16 / 24	2h 11E	3"				6.41	F3 V							Weak ★, faint companion
	π³ Ori	4h 48.4	+06° 54		0957	0959	115s / ✓	2h 48E	3"				3.69	F6 V							
1648	ADS 9387 A	14h 47.4	-17° 15	Aug 2nd	2340	0032	52 / 100	2h 50W	2-3 clear		0.6		6.0		NaH	60"			Cy, IIIa		T=12° H=2.0% w=10 μ

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1978	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	ADS 9387B	14h 47.4	-17° 15		0039	0239	120/360	3h 54W	2-5"/clear	2.85	50μ/0.6	67/447	8.8					IIaO	103a-5 67, 15m	4μ/17mx	10-20% Cirrus
	ADS 14380 A	20h 51.8	-23° 51		0257	0338	41/✓		3-5"/cirrus		/1.2		7.C								no cirrus, seeing 4-5"
	ADS 14552 AmB	21h 18.8	-27 24		0352	0552	120/360	0h 58W	3-5"/cirrus				8.0								incipient: 2A trailing
	ADS 111 A	00h 08.3	-28° 07		0615	0630	15/30	1h 35E	3-4"/cirrus				5.8					DecTrailing			25% cirrus (?)
	(west) B				0634	0649	15/30	1h 15E	3-4"/cirrus				5.8								20% cirrus (?)
	ε Peg	21h 43.0	+09° 46		0659	0702	2.6m/✓	1h 24W	"/"				3.98	K2 Ib							
	μ Peg	22h 48.8	+24° 28		0714	0717	3.05/7	0h 33W	" "				4.41	εE III+							T=10°C H=40%
	ψ³ Psc	1h 08.5	+19° 31		0722	0742	20/30	1h 23E	"/"				6.2	G0 III							w=15-20mph
1649	ADS 9387 A	14h 47.4	-17° 15	3 Aug	2339	0041	82/160	1h 58W	2-3"/clear		/0.6		8.C		NaH	60°	—		DecTrailing	4μ/17mx	T=10°C H=40% w=15mph
	(west) B				0045	0337	172/ws?	4h 57W	3-4"/"		/0.6		8.8		wind + R.A. slew trouble stopped observing						5-10% cirrus
1650	ADS 14647 AmB	21h 18.6	-26° 26	6 Aug	0405	0545	100/✓	0h 4C..	3-5"/cirrus		/1.2		7.3		NaH	60°	—				T=6°C H=5% w=20mph
	11 3130 A	1h 19.6	-57° 27		0609	0750	101/120	1h 11E	3-4"/cirrus				7.5								no cirrus w=1 mph
	ADS 2400 A	2h 41	-66° 47		0802	0[illegible]5	43/1	1h 30E	"/"				6.2								no cirrus
	γ Eri	2h 11.9	-15° 03		0851	0853	0.8, 20 ws 17 3 Aug	1h 00W	3½"/"				2.6	B2 II							
	65 Cet	2h 11.7	+08° 44		0858	0110	12/15	0h 42E	"/cirrus?				5.3	G8 II (N-2)							
	α Hyi	22h 07.5	-60° 26'		0915	0926	5:0/B	3h 35W	"/"				3.9	G2 Ib							
	f Tuc	3h 03.6	+38° 49		0928	1008	40/✓	0h 35E	"/"				3.5✓	M4 IIb-IIIa							T=2°C H=0% w=7mph
1651	ADS 11177 B	4h 01.8	-31° 55	7 Aug	2349	0219	150/✓	4h 27W	2-5/clear!		/1.2		7.2		NaH	60°	—			5μ/17mx	T=2°C H=0% w=5mph 5% cirrus
	Rub 26 E	20h 47.9	-62 50		0230	0317	45/✓	1h 09E	3/"				6.6								p=5% N
	" E	"	"		0319	0349	30/45	0h 37E	3-4 cirrus variable transparency				"					DecTrailing			
	" W	"	"		0353	0427	37/70	0h 00	3-4 - mostly - some cirrus				6.6								
	h 5319 S	22h 10.8	-38° 25		0445	0518	93/180	0h 31W	3-4/"				8.0								10% cirrus
	N				0522	0553	91/110	2h 11W	3-4/"				8.0		very noticeable seeing & variable ventilation all night						20% seeing + cirrus, last image
	h 3527 S	2h 42.0	-40° 37		0809	0839	30/60	1h 40E	"/"				6.4		wind changed ~0800 U.T. & very gusty						<10% cirrus
	N	"	"		0842	0923	41/✓	0h 58E	2-3/"				6.9								20% cirrus w=[illegible]mph
	HR 1279	4h 02.0	+15° 06		0931	1001	30/60	1h 40E	2-3/"				6.4	F3 V							T=[illegible] H=25% w=[illegible] 29:
1652	Ste 62 N	18h 33.1	-34° 51	8 Aug	2353	0112	79/✓	0h 54E	2-3/clear				7.9		NaH	60°	—				5% cirrus at ~25° w=5 mph
	S				0116	0253	97/150	0h 47W	2-3/"				8.2								5% cirrus
	ADS 14360 A	20h 50.3	-5° 42		0305	0337	32/✓ 4th Freq	0h 46E	2+/"				6.9								wind rising
	ADS 16270 A	22h 46.8	-4° 20		0351	0542	111/180	0h 36E	3-2/"				7.9					Dec Trailing			10% cirrus - seeing variable

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1978	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
	AD>16270 B	$22^h 46.8$	$-4^\circ 20$		0546	0726	80 / 160	$0^h 48$ W	2.5 / clear	2.85	50μ / 0.6	67 / 47	8.3		Dec Tracking		—	I a-E			
	AD> 1087 A	$1^h 18.9$	$-15^\circ 55$		0729	0901	92 / ✓	$0^h 10$ W	1.5 / "		1.2		8.1								
	(Wide) B				0903	1003	60 / ✓	$1^h 12$ W	1.0 / clear		0.6		8.5								
1653	ξ Her	$16^h 40.3$	$+31^\circ 38$	9th ring	0001	0004	2.7 / ✓	$0^h 06$ E	2 / clear		1.2		3.5	G1 IV	N2 A	60"	—				
	29 Her	$16^h 31.4$	$+11^\circ 32$		0009	0034	25 / ✓	$0^h 31$ W	" / "		-		6.2	K7 III							
	λ Ser	$15^h 45.2$	$+07^\circ 26$		0038	0046	7.5 / ✓	$1^h 30$ W	/ "		"		5.0	G0 V							
	μ Her	$17^h 45.5$	$+27^\circ 45'$		0050	0055	5" / ✓	$0^h 20$ E	/ "		"		4.2	G5 III							
	I 119 A	$19^h 40.7$	$-59^\circ 03$		0112	0302	110 / ✓	$0^h 08$ E	2.5-3" / "		0.6		8.7								
	HLO 284 A+B	$18^h 10.0$	$-73^\circ 40$		0310	0359	49 / ✓	$2^h 20$ W	" / "		1.2		6.5								
	I 136 A+B	$22^h 2$	$-45^\circ 06$		0425	0625	120 / ✓	$0^h 31$ W	3 / "		1.6		8.6								
	Δ5 (north)	$1^h 38.9$	$-56^\circ 18$		0637	0708	31 / ✓	$1^h 54$ E	" / "		1.2		6.1								
	(South)	"	"		0712	0743	31 / ✓	$0^h 14$ W	/ "				6.1								
1654	ADS 2402 A	$3^h 11.1$	$-29^\circ 05$		0801	0808	7 / ✓	$2^h 30$ E	" / "		-		4.4		N2A	60"	—	Dec Trail			
	B	"	"		0813	0936	83 / 120	$1^h 03$ E	2-3 / "		"		7.0(?)								
	3 Per	$3^h 52.6$	$+31^\circ 49$		0942	0944	1.8 / ✓	$1^h 38$ E	2.5 / "		-		2.70	Bi IL							
	α Tau	$4^h 34.5$	$+16^\circ 27$		0946	0948	1.2 / ✓	$2^h 15$ E	" / "		"		2.4	K5 III							
	o Per	$3^h 42.8$	$+32^\circ 12'$		0951	0957	5.5 / ✓	$1^h 14$ E	2 / "		"		3.9	B1 III							
1655	HR 6868 6864	$18^h 19.3$	$+28 57$	Anglo th	2341	0041	60" / ✓	$1^h 03$ E	2 / clear		"		4.96	I7 I III e	N2 A	60"					
	HR 6577	$17^h 37.9$	$+13^\circ 21$		0047	0136	43 / cloudy ✓	$0^h 27$ W	" / "		"		6.7	F6 III							
	Rmk 26 W	$20^h 49.9$	$-62^\circ 30$		0141	0242	61 / ✓	$1^h 33$ E	2 / "		"		6.7					Dec Trail			
	h 5319 B(S+)	$22^h 10.8$	$-38^\circ 25$		0258	0458	120 / cloudy ✓	$0^h 47$ E	2+ / "		"		8.0								
	β Aql	$19^h 54.1$	$+06^\circ 20$		0505	0511	537 / ✓	$1^h 52$ W	" / "		"		4.57	G8 III							
	α Del	$20^h 38.5$	$+15^\circ 50$		0515	0517	2.4 / ✓	" 14 W	" / "		"		3.71	B9 IV							
	61 Cyg A	$21^h 05.8$	$+38^\circ 37$		0523	0624	61 / ✓	$1^h 16$ W	" / "		"		6.31	K5 V							
1656	ADS III E	$0^h 08.3$	$-28^\circ 07$		0644	0704	20 / ✓	$0^h 28$ E	2 / "		"		5.8					Dec Trail			
	3 (W)	"	"		0707	0727	20 / 30	" 05 E	" / "		"		5.2								
	h 3527 B(S)	$2^h 42.6$	$-40^\circ 37$		0747	0827	40 / cloudy ✓	$1^h 41$ E	" / "		"		6.6								
	h 3683 A+B	$4^h 39.9$	$-58^\circ 59$		0842	0943	61 / ✓	$2^h 22$ E	2.5 / "		"		6.4								
	57 Tau	$4^h 18.5$	$+15^\circ 58$		0946	1012	26 / ✓	$1^h 30$ E	/ "		"		5.27	F0 V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1657	HR 5801	15 36.2	-26°13'	Aug 19/20	0037	0052	15m / 30m	2h24m W	1½" / clear	2.85	50μ / 1.2	67 / 4.47	6.2	B7	N:A	60s	—	Ha-O	M-S	Kai	T=10°, H=33%
	HR 5906	15 52.6	-24°30'	1978	0058	0108	10m / x1.6	2h24m W	1½	"	"	"	5.3	B6							
	HR 5910	15 53.2	-27°18'		0115	0126	11m / x3	2 42 w	1"				6.1	B6							
	3 Sco	15 53.4	-25°12		0134	0143	9m / x3	3 00 W	1"				5.8	B8							
	HD 142315	15 53.4	-22°44		0151	0213	22m / x3	3 28 w	1"				6.9	B8							
	HD 142884	15 56.6	-23 28		0218	0238	20m / x3	~3 50 w	1"				6.8	B9							RH=33% T=49°F
	HD 168403	18 19.2	-39°03		0246	0308	22m / x3	1 57 w	1"+				6.8	B9							
	HD 169853	18 26.3	-39°01		0313	0325	12m / x2	2 07 w	1"+				6.2	A2							
	HD 170642	18 30.3	-39°43		0331	0337	6m / x2	2 15 w	1"				5.5	A2							
	HD 172992	18 42.9	-39°44		0344	0355	11m / x5	2 21 w	1"				6.2	A2 SB							
	HD 178628	19 09.0	-39°04		0400	0413	13m / x4	2 13 w	1"				6.5	B8							
	HD 187474	19 49.8	-39°57		0419	0424	5m+ / x3	1 43 w	1"				5.4	A0p							
	HD 197630	20 44.4	-39°19		0429	0438	9m / x1.8	1 03 w	1"				6.0	B8							
	HD 203006	21 18.9	-40°56		0442	0447	5m / x2	36 w	1½"				5.0	A0p							
1658	HD 212385	22 22.8	-39°17		0518	0538	20m / x5	24 w	1"				6.9	A2p							
	HD 214085	22 34.8	-40°44		0543	0603	20m / x3	37 w	1"				6.8	A2							
	HD 214150	22 35.3	-40°44		0626	0638	12m / x2	1 13 w	1"				6.0	A2							Extended Exposures to Composite for poor collimation.
	HD 218242	23 05.2	-39°03		0644	0702	18m / ✓	1 07 w	1"				6.2	A0							
	HD 223011	23 44.4	-40°22		0711	0746	35m / ✓	1 10 w	2"				6.9	A2							
	~~HD 17098~~	~~2 42.2~~	~~-40°40~~										~~6.6~~								
	HD 17864	2 49.7	-40°04		0800	0835	35m / ✓	1 03 E	2"				6.8	B9							
	HD 22986	3 38.7	-40°26		0855	0925	30m / x3	1 04 E	3"				6.7	A2							Double S Component Taken. T=10°C RH=33%
	HD 24966	3 55.4	-39°03		0929	1004	35m / x2	41 E	3"				6.6	B9							
1659	HD 168403	18 19.2	-39°03	Aug 20/21	0238	0328	50m / 60m	2 20 w	3" / clear				6.8	B9							T=10° RH=27% W=15mph
	HD 169853	18 26.3	-39°01	1978	0334	0404	30m / 35m	2 50 w	3" / cirrus				6.2	A2							Cirrus clouds ~ South
	HD 170642	18 30.3	-39°43		0408	0423	15m / 18m	3 06 w	3" / "				5.5	A2							
	HD 172992	18 42.9	-39°44		0426	0500	34m / 50m	3 31 w	3" / clear				6.2	A2 SB							
	HD 178628	19 09.0	-39°04		0515	0600	45m / 60m	4 00 w	3" / "				6.5	B8							

NUMBER	OBJECT	R.A.	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1659 con't	HD 187474	19 49.8	-39°57	Aug 21/22 1978	0604	0624	20m 25m	3h45m W	4" clear	2.85	50µ 1.2	67/447	5.4	AOp	NeA	60s	—	IIa-O	IIIa-S	Kai	
	HD 197630	20 44.4	-39°19		0627	0652	25m ✓	3 21 W	3"				6.0	B8							
	HD 212385	22 22.8	-39°17		0656	0756	1h 2h	2 47 W	3"				6.9	A2p							
	HD 214085	22 34.8	-40°44		0800	0900 50m	30m	3 39 W	3"				6.8	A2							
	~~HD 214150~~	~~22 35.3~~	~~-40°44~~		0				clouds				6.0	~~A2~~							
	HD 22986	3h 38.7	-40°26		0907	0957	50m 40m	23 E	3" Tight cirrus				~6.7	A2							Rumble. S Component here.
	Moon	—	—		1004 →		2s 5s 5s						~10?	G2II							
1660	HE 5801	15 36.2	-26°15	Aug 31/Sept 1 1978	2340	2350	10m 20	130 W	1" clear				6.2	B7						Kai	
							↖ Out of Focus.														
~~1660~~ Focus		Start at 2.60 intervals of .05 up to 3.10 / None in Focus.																			LH = 31" T = 10° C wind = 10-15 mph
Focus		Starting at 3.12 intervals of .03 up to 3.39																			
~~1661~~ Focus 3		~~Starting at 3.10~~ " " .03 up to Fast 3 exposures at 3.10 +3.13 +3.16 / Then 2.80 by .05 up to 3.25 / 5.00 Sharp																			
1661	HD 187474	19 49.8	-39°57	Aug 24/25 1978	0501	0509	8m 10m	2 35 W	1"-2" clear	3.00	150µ 1.2	67/447	5.4	AOp	NeA	60s	—	IIa-O	IIIa-S	Kai	
	HD 203006	21 18.9	-40°56		0514	0519	5m 10m	1 16 W	2"				5.0	AOp							
	HD 212385	22 22.8	-39°17		0523	0555	32m 90m	49 W	2"				6.9	A2p							
	HD 214085	22 34.8	-40°44		0559	0629	30m 35m	1 11 W	2"				6.8	A2							
	HD 214150	22 35.3	-40°46		0632	0646	14m 26m	1 28 W	2"				6.0	A2							
	HD 218292	23 05.2	-39°03		0659	0719	20m ✓	1 30 W	2"				6.2	AO							
	HD 219860	23 17.8	-39°19		0724	0804	40m 100	2 04 W	2"				7.0	A2							VFO
	HD 6354	1 02.6	-40°48		0809	0901	52m ×2	1 15 W	2"				7.3	A2							RH = 32% T = 10° WIND = 12-18 VFO
	~~HD 7864~~	~~1 19.2~~	~~-40.04~~		0								~~6.8~~	~~B7~~							
	ζ Eri A	2 57.2	-40°25		0918	0919	1m 2	21 E	2"				3.5	A0							guided in Sec.
	ζ Eri B	2 57.2	-40°25		0920	0924	4m 5	16 E	2"				4.5	A0							"
	HD 22786 S	3 38.7	-40°26		0932	~~0937~~	25m 60m	26 E	2"				6.7	A2							
	HD 24966	3 55.4	-39°03		1002	1019	17m 50m	19 E	1"				6.6	B9							
	Moon				1024 →		6s 3s														

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 217
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1662	HR 5801	15 36.2	-26°13	Aug 22/23 1978	0009 ~~2320~~	0029 ~~2350~~	20m / 35	2 13w	2" / clear	3 00	50μ / 1.2	67 / 4.47	6.2	B7	NeA	60s	–	IIa-O	M-S	Kai	
	HR 5906	15 52.6	-24°30		0034	0044	10m / 18	2 13w	2"				5.4	B6							
	HR 5910	15 53.2	-27°18		0049	0111	22m / 50	2 39w	2"				6.1	B6							
	HD 168403	18 19.2	-39°03		0124	0214	50m / 100	1 16w	3" / cirrus				6.8	B9							T = 11° RH = 37% WIND = 15-30
	HD 170642	18 30.3	-39°43		0240	0252	12m / ✓	1 42w	2" / clear				5.5	A2							
	HD 172992	18 42.9	-39°44		0257	0327	30m / x2	2 08w	2"				6.2	A2+F8							Moonrise
	HD 178628	19 09.0	-39°04		0335	0405	30m / x1.8	2 15w	2"				6.5	B8							
	HD 187474	19 49.8	-39°57		0407	0422	15m / ✓	1 52w	2"-3"				5.4	A0p							
	HD 203006	21 18.9	-40°56		0428	0436	8m / ✓	37w	2"				5.0	A0p							
	HD 212385	22 22.8	-39°17		0443	0510	90m		3"				6.9	A2p	Aborted		–	¡Nubes!			T = 13° RH = 33%
1663	HD 166453	18 10.4	-39°21	Aug 23/24 1978	0022	0142	80m / ✓	1 00w	2"				7.1	B8							RH = 57% T = 13° WND SPEED = 0-15
	HD 168403	18 19.2	-39°03		0151	0301	70m / ✓	2 04w	2"				6.8	B9							
1664	HD 169853	18 26.3	-39°01		0336	0416	40m / ✓	3 16w	1"-2"				6.2	A2							
	HD 172992	18 42.9	-39°44		0420	0510	50m / 70m	3 53w	2"				6.2	A2+F8							
	HD 197630	20 44.4	-39°19		0512	0542	30m / ✓	2 22w	1"-2"				6.0	B8							Break due to clouds.
	HD 212385	22 22.8	-39°17		0627	0809	102m / 2h	3 12w	2" / cirrus				6.9	A2p							thin moonlit clouds.
	HD 214150	22 35.3	-40°44		0814	0854	40m / ✓	3 45w	2" / cirrus				6.0 ~~7.0~~	A2							" " cleared off
	HD 22986 S	3 38.7	-40°26		0904	1014	70m / 80m	0 00	2" / clear				~6.7	A2							
	HD 22486 N	"	"		1014	1021	7m / no X 55s 65s 85	07w	"				~6.8	?G.							T = 11° RH = 36%
	Moon																				
1665	HR 5906	15 52.6	-24°30	25/26 Aug 78	23.55	00.09	14m / x2	1 49w	3" / clear				5.4	B6							
	"	"	"		0010	00.38	25 / ✓	2 14w	3"				"	"							
1666	~~HD 172579~~	~~18 40.7~~	~~-39°19~~	Aug 26/27 1978	~~0150~~		90m		2"-3"				~~7.1~~	~~B8~~							~~T = 3°~~ ~~RH = 84%~~ ~~WIND = 0-2~~
	3 Sco	15 53.4	-25°12		2352	0005	13m / x2		2"				5.8	B8					H = 37% T = 10°		
	3 Sco	"	"		0005	0031	26m / ✓	2 15w	2"				5.8	B8							

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1667	HD172579	18 40.7	-39°19	Aug 26/27 1978	0051	0231	100m ✓	1 25w	2" clear	3.00	50μ 1.2	67/4.47	7.1	B8	NeA	60s	—	IIaO	MS	Kei	T=15° RH=35% WIND=5-10 mph
	HD172992	18 42.9	-39°44		0234	0329	55m ✓	2 22w	2"				6.2	A2+F8							
	HD178628	19 09.0	-39°04		0340	0440	60m ✓	3 12w	2"				6.5	B8							
	HD212385	22 22.8	-39°17		0449	0624	90m ✓	1 37w	2"				6.9	A2p			light leak				
	HD214085	22 34.8	-40°44		0627	0747	80m ✓	2 49w	2"				6.8	A2							Moonrise 710 ~
	HD 17098 AB	2 42.2	-40°40		0855	0904	38m 32m	6 E	2"		100μ 1.2		6.6	A0							~~Both Components~~ Both components
	HD22986 A	3 38.7	-40°26		0907	1011	64m 80m	8 w	2" cirrus		50μ 1.2		6.7	A2				T=11° WIND 5-10 RH=21%		(S)	Bright Blue Comp
Focus	Aug 27	Steps of 0.05	from 2.85	up to	3.20	/ 2.95	is best!														
1668	HD 175855	18 57.0	-39°35	Aug 29/30 1978	0000	0135	95m 75	25 w	2"-3" clear	2.95	50μ 1.2	67/4.47	7.1	A0	NeA	60s	—	IIaO	MS	Kei	H=57% T=5°
	HD185257	19 37.9	-39°31		0150	0420	150m ✓	2 30w	2"-4"				7.2	A2							
	HD219860	23 17.8	-39°19		0428	0548	80m 100	19w	2"				7.0	A2							
	HD 17098	2 42.2	-40°40		0616	0646	30m ✓	2 08E	2"		100μ 1.2		6.6	A0			Seeing very unstable the whole night.			7.0 7.2 1.5"	Both Components
	HD 22986A	3 38.7	-40°26		0655	0825	90m 120	1 44E	4"-2"		50μ 1.2		6.7	A2							WIND = 5-25 mph.
	HD 24966	3 55.4	-39°03		0831	0916	45m 1h	51E	1"-2"		" "		6.6	B9							
	θ Eri A	2 57.2	-40°25		0930	0938	1.5m×3 2m	30w	2"				3.5	A0	} trailed in Sec						
	θ Eri B	"	"		0942	0954	2.5×3 3m	45w	1"-2"				4.5	A0	4 trails 6 trails 8 trails						T=8° H=45%
1669	HD 170642	18 30.3	-39°43	30/31 Aug 1978	2350	0010	20m 13m	30E	2" clear				5.5	A2							H=41% T=11°
	HD175855	18 57.0	-39°35		0017	0137	80m 70m	31w	2"				7.1	A0							
	HD185257	19 37.9	-39°31		0141	0321	100m ✓	1 25w	2"				7.2	A2							
	HD187474	19 49.8	-39°57		0335	0353	18m ✓	1 54w	2"				5.4	A0p							
	HD203006	21 18.9	-40°56		0407	0421	14m 13m	54w	2"				5.0	A0p							
	HD 219860	23 17.8	-39°19		0436	0556	80m ✓	32w	2"				7.0	A2							
	HD 6354	1 02.6	-40°48		0623	0808	105m ✓	1 05w	2"				7.3	A2							
	HD 22986A	3 38.7	-40°26		0821	0941	80m ✓	5E	2"				6.7	A2							WIND=0-5 T=11° H=35%

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1670	HD 125855	1857.0	-39°35	31/1 August 1978	0019	0130	70m ✓	27m W	1-2" clean	2.95	50μ 1.2	67 4.47	7.1	A0	NeA	60s	-	IIaO	m-5	Kui	T = 12° RH = 44% WIND = 0-5
	HD 173660	18 46.2	-39°39		0135	0305	90m ✓	2 15 W	2"-1"				7.4	A0							
	HD 3085	0 32.5	-40° 06		0348	0528	100m ✓	1 09 E	2"				7.4	B8							
	HD 19904	3 09.6	-39° 10		0600	0740	100m ✓	1 34 E	2"				7.3	A2							H = 38% T = 11° WIND = 0-5
	~~HD 24966~~	~~3 55.4~~	~~-39°03~~										6.6	B9	INukes!						
Lc1671	22 Sco	16 28.7	-25 04	1/2 Sept 1978	2340	2353	2, 4, 8m 7m	1h 24m W	1.5"	2.95	50μ / 1.2	67 / 4.47	4.65	B2	NeA	60s	-	IIaC	III-5	[illegible]	
	σ Sco	16 19.1	-24 06		2358	0029	4, 8, 16m 7m	2h 9m W	"-2"				5 35	A5					(2)+ 15 mm		
	K Oph	16h 56m.5	+09° 19'		0033	0052	[redacted] 1, 2, 4, 11, 21m	2h 55m W	2-3"				V=3.2	K2III							
	τ Oph	17h 25m.3	+04° 03'		00:56	01:06	10m 20m		2"				V=4.3	K2II							
1672	HD 172992	18 42.9	-39° 44	"	0118	0213	56" 45	1 29 W	1.5"				6.2	A2+F8						K	T = 13° H = 45.4
	HD 178628	19 09.0	-39° 04		0221	0246	35m 30	1 37 W	1½"				6.5	B8						~~K~~ "	
	HR 6842	18 16.5	-27° 04		0259	0338	40m 35"	3 26 W	1½"				6.32	K3 II						"	
	HR 7164	18 58.0	-18° 36		0343	0439	56m 70m	3h 40 W	1"-5				V=6.3	G3 II	(B = ~7.3).						
	μ Peg	22 48.8	+24° 28'		0443	0451	8m 7m	0h 3m W	2"				4.4	G8III							
	β Peg	23 02.6	+27 57		0455	0508	13m 7m	0h 5m W	2"				4.2	M2.5							
	γ Peg	23 56.5	+24 56		0512	0635	83m 60	0h 40m W	2"				6.3	M3							
	HD 3085	00h 32.5	-40° 06'		0645	0738	53m 106	1h 2m W	1"				7.4	B8							ideal uncertain, brightest on pull
	HD 19904	03 09.6	-39 10		0742	0824	42 60m	45m E	1"				7.3	A2							
	HD 24966	03 55.8	-39 03		0827	0853	26 55m	1h 2m E	1"				6.6	B9							
	HD 34645	05 16.2	-39 18		0858	0940	42 60	1h 35m E	1.5"				7.0	A2							40°C light wind 12°C possible Twilight
	ξ' Ret	3 16.2	-62 40		0947	1009	26m ✓	52m W	1.5"				6.2	G2							
	ξ² Ret	3 ~~17.7~~ 16.5	-62 36		1009	1026	16m ✓	1h 8m W	1.5"				5.8	G0							
1673	Vesta	16 56.7	-22 33.	2/3 Sept 1978	2337	0040	63m 40	1h 47m W	<1"				7.3	G2-5cm							14° SmphNE Y5%
	"	"	"		0040	0113	33m	2h 20m W	"				"	"							
	Ceres	18 46.4	-31 12		0136	0506	3h 6h	4h 26m W	1-1.5				8.2	G2-5cm							30mm focus turn
1674	ζ Tuc	00h 18.5	-65 03	"	0546	0551	5m ✓	26m E	1.5"				4.8	G2							
	HR 72	00 17.6	-8 10		0600	0645	45m ✓	32m W	<1"				7.1	G0							
	HD 6269	01 01.9	-29 40		0649	0735	45m ✓	37m W	~1"				7.0	G5							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1674 (Cont)	HD10700 ? cat	01 43.3	−16 05	2/3 Sept 1977	0739	0742	3m /	4hW	1" clear	295	50µ/1.2	67 / 4.47	4.4	G8	NoA	60s	10min	IIa-O	M5 6.7µF 15mm		
	HD11937 2 ERR	1 55.1	−51 45		0750	0755	4m 23s /	4hW	1.5"				4.4	G5			pos 1 stop wedge				
	HD11977 h2 Hyi?	1 54.3	−67 47		0800	0814	13m /	23mW	1.5"				5.5	G5							
	HD13043	02 06.3	−00 43		0819	0830	7m /	1h29mW	1.5"				7.6	G2							
	ζ² Ret	03 17.7	−62 36		0934	0950	16m /		2"				5.8	G0							
1675	δ Sco	16 58.8	−22 33	3/4 Sept 1977	23.3	2317	20m 40s / 30	1h25mW	1.5 v.m. clear	"	"	"	2.2	Bc.5Ve	"	"	9 min	"	"	"	"
	ξ Sco	15 47.6	+18°13'		2323	2346	23m / 7+41						~5.8	M1 III ab			pos 1 stop wedge				clouds on S & W horizon
	Ceres	18 46.1	−31 13		2352	0404	4h12m / 6h	3 25mW	1.5 / Rift				8.2	G2 - sem							11°C, 40% normid
	42 Cap	21 40.4	−14 08		0408	0428	20m / 1h	56mW	1" "				6.0	G2							clouds rising
	51 Peg HR 6 =HD 142	22 56.0	+20 40		0436	0511	35m / 3..	24mW	2" /				6.2	G2							
		0 05.1	+49 13		0545	0611	25m /	16hW	1" /				6.5	G1							
	HR176=HD38233	5h 39.0	−59 36		0614	0646	32m /		1-2"				6.5	G1							clouds at 45° S, W, N
	HR159=HD34443	0h 36.0	−24 54		0649	0705	15m /	same as left	1.5" clouds				6.5	G5							stopped by clouds all over
	"	"	"		720	753	~30m +5s		1.5 dense clouds				6.5	G5							Thin clouds & fall-out
	K Cet	3h 18.0	+3 17		0851	0920	18, 10 / 10m	12mW	1.5 a few clouds				5.5	G5							
1676	Vesta	16 59.2	−22 41	4/5 Sept 1977	2342	0006	3h 6, 12m / 12m	1h18mW	1" some cirrus	3.45	10µ/0.8	120 / 7.0	7.3	G2 - fair	NoA	10s		IIa-O	MUP-2 7m 67°F		11.5°C, Cirr 4/10
	Pallas	16 51.8	+13 50'		0025	0125	50m /	2h45mW	2" stopped by clouds				10.1	"							
	Ceres	18 46.3	−31 13		0240	0400	36m +30 /	3h26mW	2" Im clouds				8.2	G2							20 min lost to thick clouds
	"	"	"		0400	0415	13m / 4m	3h38mW	2" 1-2m clouds				"	"							stopped by thick clouds
	HD105	0 04.7	−41 54		0513	0533	20m /	19mE	1" clear				8.5	G0							
	HD142=HR6	0h 5.1	−49 13		0535	0539	3½m /	14mE	1.5 /				6.5	G1							
	HD469	0h 8.0	−54 09		0541	0549	7m /	7mE	1.5 "				7.0	G4							
	HD 1273	0h 15.4	−52 48		0551	0601	10m /	3mE	1.5 "				7.5	G2							
	HD 2070	0 23.4	−51 11		0603	0613	9m /	1mW	1" "				7.5	G4							
	HD 3443	0 36.0	−24 54		0615	0619	2m /	4mE	1" "				6.3	G5							
	HD 3460	0 36.0	−37 26		0621	0633	10m 1m /	10mW	1" increasing clouds				7.7	G5							
	HD3823	0h 39.0	−59 36		0655	0700	4m /	33mW	2" increasing "				6.5	G1							
	HD6269	1h 01.9	−29 40		0705	0713	7m /	24mW	2" clear				7.0	G5							wind increasing
	HD6434	01 03.6	−39 36		0725	0756	30m −5m /	1h5mW	3" some cirrus				8.5	G3							11°C 20 mph 2/10

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1676	HD6594	01 05.1	−34 56	4/5 Sept 1978	0803	0830	27m ✓	1h38mW	1.5" some clouds	345	100μ/0.8	120/7.0	8.5	G3	Ne A	10s		IIa O	MWP-2 7min 67°F	✓	
(Cont)	HD8638	01 23.6	−27 58		0833	0918	40m ✓	2h2mW	2" clear				9.0	G3							
1677	HD11112	01 47.3	−41 37	"	0921	0934	12m ✓	2h W	1.5" "	"	"	"	7.8	G4	"	"	"	"	"	"	
	HD12387	01 59.4	−40 51		0936	0953	17m ✓	2h6mW	1.5" "				8.0	G3							
	HD13043	02 06.3	−00 43		0956	1006	10m ✓	2h14mW	" "				7.5	G2							
1678	Vesta	17 00.5	−22 45	5/6 Sept 1978	0033	0058	47,18 70m	2 12W	2" clear	3.42	"	"	7.3	G2 - Sun	"	"	"	"	"	✓	11°C
	Ceres	18 46.4	−31 12		0101	0132	10,20m 40m	1h W	2" clear				8.2	"							10°C brightest star in field
	Juno	19 33.8	−09 44		0156	−0245 0408 · 0458	~100m 2h 3h	3h44mW	2" cloudy · stopped by clouds several times				10.0	"							
	HD207076	21 45.1	−02 19		0516	0552	36m ✓	2h22mW	2" some cirrus				9	M7III	stl.						
	HD105	00 04.7	−41 54		0601	0711	20m eff ✓	1h23mW	2" thin & between clouds				8.5	G0							clear since start if next obj
	HD11112	01 47.3	−41 37		0716	0755	10m eff 20m	25mW	2" thin clouds				8.0	G4							
1679	Sky	Zenith		6/7 Sept 1978	2140		25 ✓	0h		3.42	100μ/1.8	120/7.0?		G2 Sun	Ne A	10s		IIa O	MWP 2 7mm 67°F	✓	
	"				2252		1m							"							
	"				2256		2m 1m							"							
	"	"			2300		2m 1m							"							
	Vesta (2)	17 01.8	−22 50		2331	0004	10,22m ✓	1h22mW	3-4" clear				7.3+	G2V - Sun							7½°C 2mphNE 70%
	Ceres (2)	18 46.4	−31 12		0016	0118	20,40m 80		3-4" "				8.2	"							
	" (1)	"	"		0122	0242	80m ✓	2h18mW	" variable seeing!				"	"							
	HR7164 (β)	18 58.0	−18 36		0248	0325	5,10,20 12m	2h45mW	4" clear				7.5:	G2II							
	HD181475	19 19.5	−04 33		0328	0348	20m		4" enter clouds!				9:	M0II							stopped by very heavy clouds 6°C 2mphNE 90%
	HD105	00 04.7	−41 54		0643	0737	54m ✓	1h53mW	4-6" cleaning, but humid				8.5	G0							
	HD12387	01 59.4	−40 51		0749	0826	37m ✓	48mW	4-6" clear but humid				8.0	G3							
	HD16784	02 39.5	−30 15		0832	0923	51m ✓	1h5mW	4" "				8.7	G0							
	HD18819	02 59.8	−27 43		0927	0957	30m ✓	1h19mW	4" clear humidity dropping				8.3	G0							5°C 3mphNE 80%
1680	Sky N Sec	15 45.2	+07 26	7/8 Sept 1978	2327	2332	30s 2m 1m	2h11mW	1.5" clear				5.0	G0V stl.				IIa O			
	Moon	15 01.6	−12 52		2340	2341	10,20s	3h3mW	—				2	G2V - Sun							9°C 5mph 45%
	Vesta	17 03.1	−22 54		2346	0025	5,16,22 18m	1h47mW	1" clear				7.3	G2V - Sun							
	Juno	19 33.4	−10 01		0049	0103	3h14m 3m ✓	2h54mW	1" clear				10	G2V - Sun							
	10 Lac	22 38.2	+38 55		0411	0421	3m 1.5 3m 1.5	8mW	2" clear				4.7	O9 V stl							
	~~LP 076~~																				

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	RA 1975	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1681	HD207076	21 45.1	−02 19	7/8	0506	527	20m ✓	26m W	1" clear	3.42	100µ/1.8	120/7.0	8.5:	M7 III Std	NaA	10s	8mm proj	IIa-O	MMT 2 then GTF		
	HR8795 = 55 Peg	23 05.8	+09 16	Sept 1978	0531	0546	24m 8m ✓	1h 5m W	1.5 clear				6.1	M1 III abla std							
	ν Peg	23 56.5	+25 00		0550	0606	24m 8m ✓	35m W	1" "				6.3	M3 III std							
	HD142 = HR6	00 5.1	−49 13		0610	0613	3m ✓						6.5	G1							
	HD469	0 08.0	−54 09		0615	0621	5m 6	38m W	" "				7.0	G4							
	HD1273	0 15.4	−52 48		0623	0632	8m 9	41m W	" "				7.5	G2							
	HD2070	0 23.4	−51 11		0635	0644	8m 7 9	44m W	" "				7.5	G4							
	HD3823 = HR176	0h 39.0	−59 36		0646	0649	3m 3.5	33m W	" "				6.5	G1							
	HD3443 = HR159	0h 36.0	−24 54		0652	0655	3m 3.5	44m W	1" "				6.3	G5							
	HD3460	0h 36.0	−37 26		0657	0707	10m 13m	55m W	1" "				7.7	G5							
	HD6139	1h 00.8	−31 46		0713	0753	46m 60	1h 16m W	" "				9.2	G0							
	HD6269	1h 01.9	−29 40		0754	0759	4.5m 6	1h 22m W	" "				7	G5							
	HD6434	1 3.6	−39 36		0802	0820	17m 17	1h 42m W	1.5" "				8.5	G3							
	HD6594	1 05.1	−34 56		0822	0839	17m 10	2h W	1.5" "				8.5	G3							
	HD8638	1 23.6	−27 58		0853	0923	30m 30m	2h 24m W	" "				9.0	G3							
	Hyades #17 HD26756	04 12.7	+14 33		0930	1000	30m 30m	12m W	2" clear				7.1	G5							
	K Cet	03 18.0	+3 17		1002	1003	1m ✓	1h 12m W	2" clear				5.5	G5 ✓ std							10°C Cirrus 40%
1682	SS433	19 10.8	+04 56	8/9 Sept 1978	0000	0430	4h 1/2 N 6	3h 50m W	1" cirrus	3.42	100µ unfiltered	120 IT 7.0	13.5:	nebular star	NaA	4s		IIa-D	MMT 2 then GTF		
1683	HD14412(2)	2 17.9	−26 03		0716	0732	5m 10	16m E	2" cloudy			1m IT	7.0	G5		10s		IIa-O			
	HD14802(2)	2 21.4	−23 55		0734	0743	2m 6m	10m E	2" cloudy ~1m				6.0	G1							
	HD16141(2)	2 34.2	−03 39		0748	0819	20m 10m	15m W	2.5" cloudy				7.5	G5							
	HD18907(2)	3 00.4	−28 09		0822	0832	6m 3m	1m W	" "				6.6	G5							
1684	SS433	19 10.8	+04 56	9/10	23 52	0415	3h 1/2	5h 37m W	2" light cirrus	"	"	IT	13.5:	nebular star	"	1s		IIa-D	"	"	Spectrum wavy 11°C Cirrus 45%
1685	HD4428	0 44.7	−44 14	Sept 1978	0500	0552	5m ✓	20m E	2" clear			NO IT (filter slipped)	9.3	G5		10s		IIa-O			
	HD3460	0 36.0	−37 26		0628	0645	17m 14	43m W	1.5" clear				7.7	G5							
	HD6139	1h 00.8	−31 46		0650	0759	67m ✓	1h 31m W	2" "				9.3	G0							
	HD16623	2 38.1	−26 24		0813	0954	100m ✓	1h 51m W	" "				9.8	G2 V-IV							11°C, 10 mph NE 40%
	HD18907	3 00.4	−28 09		0956	1004	5m ✓	1h 34m W	2" clear				6.6	G5							

NUMBER	OBJECT	R A (1975)	DEC	DATE U.T	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1686	β Sct	18 45.9	−04°46′	10/11 Sept 1978	0019	0028	1½,1,2,4 1m	19m W	1.5" Cirrus	342	100µm/1.8	120 / 7.0	5.3	G4 II CN1	NeA 10s		8mm prod.	IIa-O	Ref. 2 7m-GPA	N	13°C Humid NE 40% thick cirrus
	HR7495	19 40.1	+45 28		0041	0124	1.5, 3, 6, 2m	26m W	2" "				5.5	F5 II std.							between clouds
	8 Sge	19 57.7	+19°25′		0128	0146	1,2,4,8m 1m	25m W	" "				5.0	KS-M0 III std							" "
	181475	19 19.5	−04 33		0156	0345	40m off 30m	3h W	1" Cirrus				9.:	M0 II std							stopped for several hours
	HD6269	01 01.9	−29 40		0505	0513	7m ✓	14m E	1" clear				7	G5							
	HD6434	01 03.6	−39 36		0514	0536	22m ✓	50m E	" "				8.5	G3							
	HD6594	01 05.1	−34 56		0538	0608	30m ✓	21m E	" "				8.5	G3							
	HD7983	01 17.9	−9 03		0611	0738	87m ✓	56m W	2" clear				9.7	G2							
	HD11112	01 47.3	−41 37		0742	0754	12m ✓	44m W	1.5 clear				7.8	G4							
	HD12783	02 04.1	+00 12		0758	0824	25m 35m	56m W	1.5"				8.7	G5.							
	HD13043	02 06.3	−00 43		0826	0836	10m ✓	1h 06m W	" "				7.5	G2							
1687	HD14412	02 17.9	−26 05	"	0847	0853	6m ✓	1h 12m W	" "	"	"	"	7.0	G5	"	"	"	"	"	"	"
	HD14812	02 21.4	−23 55		0854	0856	2m 1.5	1 12 W	1" "				6.0	G1							
	HD15550	2 28.3	−42 10		0859	0924	25 ✓	1h 32m W	1" clear				8.7	G5							
	HD28068 = Hyades 63	4 24.9	+16 48		0933	1002	29m ✓	14m W	1" clear				8.7	G5							
1688	HR6577	17 37.9	+13 19	11/12	2342	0004	3, 6, 12 5m	1h 5m W	1.5 cirrus clearing	"	"	"	6.7	F6 III std	"	"	"	"	"	"	13°C ion. NE 45% clouds, then clear.
	HR6868 186 Hya	18 19.3	+21 57	Sept 1978	0006	0025	1.5, 3, 6 3m	45m W	2-3" clear - few cirrus				6.5:	M1 III Ca std.							
	γ Lib	15 34.1	−14 42		0027	0032	1.5, 3 ✓	3h 38m W	" clear				5	G5 III Ca-1 std							
	29 Her	16 31.4	+11 32		0036	0052	15m 10m 6m	3h W	3" few cir. clear, stopped by cloud cirrus				6.5:	K7 III std							
	Moon (9d)	18 58.5	−17 30		0110	—	½, 1, 2 5	52m W	— through clouds				?	G2 V - few							
	3 Aql	20 46.4	−05 07		0217	0226	3, 6m ✓	19m W	2" clear				6.05	M3 III std							11°C ion. NE 40%
	2 Peg	21 28.8	+23 32		0230	0244	4, 8m ✓	5m E	" few cirrus				6.2	M1 III std							
	181475	19 19.5	−04 33		0247	0308	21m 60m		" stopped by clouds				?.	M0 III std.							this star seems heated! 3rd time!
1689	48 Lib 15 ±	15 52.7	−16 33	13/14 Sept 1978	2321	2330	1, 2, 4 1m	2 25 W	2-3" clear				5.3	K0							
	48 Lib				2337	2341	½, 1, 2 2m 1m		2" "				4.7	G3p							
	Vesta	17 11.6	−23 21		2346	0008	22m ✓	1h 45m W	2" clear				8.0	G2V sun							
	ζ Sco	16 53	−42 19		0012	0021	1, 2 3m	2h 15m W	2" "				5	K5.							
	ν Sco	16 10.6	−19 25		0029	0030	15s 30s 1m 1m	3 10 W	2" "				4.1	G2							
	moon	21 05	−13 02		0035	—	1, 2, 5m 1½ s	1h 40m E	" clear				?	G2V sun							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1690	ν Oph	16 26.2	-08 18	13/14	0105	0108	20 40 60 / 3	3 50W	2" clear	342	100/68	120/110	4.8	Am	NeA	10⁵	yes	II-O	IIaD 2 7-67F		
	ν Sco	17 19.5	-12 49	Sept 1978	0112	0119	1½ 1½ 1½	2h46mW	" "				4.4	A1							
	27 H. Oph	17 25.3	-05 02		0121	0125	1½ 2 7m	2 49mW	" "				4.9	F3							
	μ Sco	18 12.4	-21 04		0130	0133	12 24 45 50	2h9mW	" "				4.0	B8							
	R Sct	18 46.1	-05 42		0139	0202	3 6 4 7m	2h3W	2" clear				6.1	G0I							
	ρ Sco	19 20.4	-17 54		0250	0252	10 20 30 40	2 20W	2" clear				3.9	A5							
	σ Sco	19 22.6	-40 40		0256	0259	15 30 5 35	2 25W	" "				4.1	B8							next star unexposed on last spectrum (how many on plate)
	ε Aql	19 35.5	-01 19		0303	0308	20 40 5 40	2 30W	" "				4.3	B5							
1691	θ Aql	20 10.0	-00 52	"	03116	0318	8 16 32 10	1h57mW	3" "				3.4	A0							
	15 Sgr	18 14.1	-20 45		0340	0346	1 2 4 7m	4 21W	" "				5.5	B8Ia							
	16 Sgr	18 14.1	-2024		0350	0405	2 3 7 15m	4 40W	" "				6.0	G9II							
	ν Peg	23 24.3	+23 18		0410	0418	4 7 15 15m	17E	2" "				4.9	F8							
	54 Psc	0 38.2	+21 10		0530	0600	4 8 16 40m	12mW	2" clear				6.7	K0V							
	ζ Phe	01 30	-49 09		0605	0611	20 40 80 40m	30mE	" "				4.9	K0							
1692	HR 483	01 40.3	+42 32		0625	0644	1 2 7 8m	8mE	3" clear				5.5	G2V							
	o Cet	02 18.3	-03 01		0647	0719	92m	50mW	2" clear				?	Me							
	HD 27691	04 21.4	+15 03		0828	0845	17m 12m	39mE	2" clear				7.6	G0V							slow, was double?
	HD 26756	04 13.2	+14 36		0900	1000	60m	35mE	4" clear				9.2	G5V							
1693	Sky	—	—	14/15	2150		1 5	0	— clear	"	"	"	?	G2V-Sun	"	"	"	"	"	"	1.1°C 45% sky NE
	Vesta	17 13.1	-23 26	Sept 1978	2342	0014	20m 12m	1h52mW	2" clear				8.0	G2V-Sun							
	HD 160702	17 40.8	-21 45		0016	0118	62m	2h30mW	1.5" clear				10.0	A0 O?							Limit star N Sun HD 160702 0 star
	Bm Sco	17 39.5	-32 13		0122	0153	20 10	3h6mW	1.5" clear				8 K2.5Ib CN+1								
	18 Her	19 19.3	-04 32		0213	0313	60m	2h46mW	1.5" clear				M0II	9.0							
	Moon	1903	-9 20		~~2116~~		1 3 1 3 5	0h					G2V	?							
	Sky	22 03	-2958		0346	0646	3h	3h37mW	— clear				?	G2V							
	45 Kzai	02 54.2	+18 14		0656	0738	12 26	23mE	2" clear				7.5	MGIII							
	HD 27836	04 22.5	+14 43		0805	0835	30m	54mE	2"-3"				8.2	G1V							
	HD 28344	04 27.2	+17 15		0838	0917	39m	17mE	2"-3" clear				8.5	G1V							
	HD 27406	04 18.6	+15 12		0920	0940	20m	15mW	2" clear				8.0	G0V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

✓ GOOD
W EXCELLENT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1978	DEC. 1978	DATE U.T. 1978	U T EXP. BEGIN	U T EXP. END	TOTAL / CORR. MIN.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB POSITION	EMUL	DEV	OBS	REMARKS
1694	T Cru	22h 24.m4	-37° 45′	NOV. 10-11	02:55	03:40	45/V	3h 52m W	1"/CLEAR	3.32	100/0.8	120/7.0	10.5	MIRA M0e			-5	IIaD	M-S 15m	Crw	H=50% T=17°C
	R For	02h 28.m2	-26° 12′		04:55	05:40	45/OUT OF FOCUS	1h 45m W					9.5	MIRA Ne	NeA	2s	-3				NO LINES IN B!
1695	T Col	05h 18.m5	-33° 45′		07:06	07:51	45/VV	1h 09m W					10.0	MIRA M4e-M6	NeA	2s	-5				H=42% T=16°C
1696	RY Mic	20h 57.m0	-40° 24′	NOV. 11-12	00:45	04:00	195/SL. WEAK	5h 44m W	1"/CLEAR	3.32	100/0.6	120/7.0	<12	MIRA —			-5	IIaD	M-S 15m	Crw	H=50% T=17°C
	T Cru	22h 24.m4	-37° 45′		04:15	05:15	60/V	5h 30m W					10.5	MIRA M0e	NeA	2s	-3				
	R For	02h 28.m2	-26° 12′		05:22	06:07	45/OUT OF FOCUS	2h 19m W		3.92			9.5	MIRA Ne	NeA	2s	-1				NO LINES IN B! NOT IN FOCUS IN R!
1697	T Col	05h 18.m5	-33° 45′		06:48	07:23	35/VV	0h 46m W		3.32			10.0	MIRA M4e-M6			-5				
	RV Pup	06h 42.m0	-42° 21′		07:45	08:25	40/TOO STRONG	0h 25m W					9.7?	MIRA M4Ie	NeA	2s	-3				H=32% T=16°C
1698	T Cru	22h 24.m4	-37° 45′	NOV. 12-13	01:10	02:26	75/VV	1h 45m W	1"/CLEAR	3.32	100/0.6	120/7.0	10.5	MIRA M0e	NeA	2s	-5	IIaD	M-S 15m	Crw	H=50% T=17°C
	R For	02h 28.m2	-26° 12′		02:42	03:43	60/(GOOD WEAK)	0h 01m E		3.02			9.5	MIRA M0e	NeA	2s	-3				IN FOCUS IN R!
1699	RV Pup	06h 42.m0	-42° 21′		05:13	05:38	25/STRONG	2h 20m E		3.32			9.0?	MIRA M4Ie			-5				
	CH Pup	06h 44.m6	-36° 32′		06:00	07:11	70/VV	0h 50m E					10.2	MIRA —			-3				
	AS Pup	08h 09.m0	-38° 08′		07:30	08:35	65/VV	0h 50m E					10.5	MIRA M7e	NeA	2s	-1				H=45% T=14°C
1700	RY Mic	20h 57.m0	-40° 24′	NOV. 13-14	00:40	04:25	225/V	6h 15m W	1"/CLEAR	3.32	100/0.6	120/7.0	<12	MIRA —	NeA	2s	-5	IIaD	M-S 15m	Crw	H=48% T=16°C
1701	R For	02h 28.m2	-26° 12′		05:00	06:32	90/SL. WEAK	2h 48m W	CIRRUS!	3.02			9.5	MIRA M0e	NeA	2s	-5				MORE EXPOSURE TO GET LINES IN R!
	RV Pup	06h 42.m0	-42° 21′		06:40	06:55	15/VV	0h 59m E	1"-1½"	3.32			9.0	MIRA M4Ie			-3				CIRRUS ALL OVER THE SKY!
	CH Pup	06h 44.m6	-36° 35′		07:18	08:48	90/VV	0h 52m W					10.2	MIRA —	NeA	2s	-1				
1702	R For	02h 28.m2	-26° 12′	NOV. 14-15	00:48	01:49	60/FACTOR IN!	1h 49m E	1"/CLEAR	3.50	100/0.6	120/8.36	9.5	MIRA M0e	NeA	2s	-5	IIaD	M-S 15m	Crw	H=32% T=14°C
1703	R For	02h 28.m2	-26° 12′		03:10	04:21	70/TOO STRONG	0h 45m W					9.5	MIRA M0e			-5				OVEREXPOSED!
	RV Pup	06h 42.m0	-42° 21′		04:32	04:48	15/V	2h 00m E					9.0	MIRA M4Ie	NeA	2s	-3				
1704	CH Pup	06h 44.m6	-36° 35′		05:57	07:03	65/VV	0h 50m E	CIRRUS!				10.2	MIRA —	NeA	2s	-5				MORE CIRRUS!
	S Car	10h 09.m3	-61° 27′		07:50	08:00	10/V	3h 18m E		3.32	100/0.6	120/7.0	8.7?	MIRA K2e-M4e			+1				
	T Cen	13h 40.m1	-33° 26′		08:36	08:42	6/WEAK	6h 04m E					8.5?	MIRA K2e-M4e	NeA	2s	+3				H=22% T=13°C

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 226

GARRISON CLASSIFICATION SPECTOGRAPH

✓ GOOD
VV EXCELLENT

NUMBER	OBJECT	R.A. 1979	DEC 1979	DATE U.T. 1979	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR. MIN.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP. KIND	COMP. EXP.	CALIB Posman	EMUL	DEV	OBS	REMARKS
1705	T Col	5h18.6m	-33°42′	MAR 6-7	1:20	2:05	45/ST STRONG	2h58m W	1″/clear	3.32	100/0.6	120/7.0	10.0	MIRA M4e-M6	NONE		-5	IIaD	M-5 →15m	Crw	H=40% T=16°C
	RV Pup	6h42.0m	-42°23′		2:42	3:42	60/ST WEAK	3h45m W					~11	MIRA M4Ie	NONE		-3				
	CH Pup	6h44.7m	-36°31′		4:00	5:11	70/VERY WEAK	4h40m W					~12	MIRA —	NONE		-1				FORGET COMPARISON!
1706	AS Pup	8h09.0m	-38°07′		5:44	5:55	2,3,4/VV	4h00m W					8.0	MIRA M7e	NeA	2s	-5,-3,-1				
	R Car	9h32.4m	-62°42′		6:15	6:34	10,5/V	3h16m W					~8.7	MIRA M4-7e	NeA	2s	+1,+3				
	AS Pup	8h09.0m	-38°07′		6:42	6:54	>10/TOO STRONG	5h02m W					8.0	MIRA M7e	NeA	2s	+5				
1707	XZ Cen	12h23.3m	-35°31′		7:41	7:58	>15/VV	1h49m W					9.0	MIRA M5	NeA	2s	-5				
	T Cen	13h40.6m	-33°27′		8:14	8:27	2,3,5/V	1h00m W					~8.0	MIRA K3e-M3	NeA	2s	-3,-2,-1				
	R Cen	14h15.5m	-59°48′		9:00	9:08	1,2,+3/V	1h06m W					~7.2	MIRA M4-5e	NeA	2s	+1,2				SET TRAILS!
	S Car	10h09.1m	-61°25′		9:24	9:30	1,2,~2/V	5h35m W					~7.2	MIRA K2e-M4e	NeA	2s	+4,5				SET TRAILS! H=40, T=16
1708	T Col	5h18.6m	-33°42′	MAR 7-8	0:45	1:17	32m/STRONG	2h16m W	1″/clear	3.32	100/0.6	120/7.0	10	MIRA M4e-M6			-5	IIaD	M-5 →15m	Crw	H=52% T=17°
	RV Pup	6h42.0m	-42°23′		1:25	2:59	94m/V	2h35m W					~11	MIRA M4Ie	NeA	2s	-3				
	AS Pup	8h09.0m	-38°07′		3:10	3:15	5m/VV	1h24m W					~8	MIRA M7e	NeA	2s	-1				
	R Car	9h32.4m	-62°42′		3:22	3:32	10m/VV	0h17m W					8.7	MIRA M4-7e	NeA	2s	+1				
	S Car	10h09.1m	-61°25′		3:37	3:43	2m,1½m/TOO STRONG	0h09m E					~7.0	MIRA K2e-M4e	NeA	2s	+3,5				
1709	CH Pup	6h44.7m	-36°31′	MAR 8-9	0:57	1:59	>180m/WEAK	3h35m W	1″/clear	3.32	100/0.6	120/7.0	12	MIRA —	NeA	2s	-5	IIaD	M-5 →15m	Crw	H=46% T=15°C
1710	CH Pup	6h44.7m	-36°31′	MAR 16-17	1:35	ABANDONED DUE TO VFD PROBLEMS			1″/clear	3.32	100/0.6	120/7.0	12	MIRA —	NeA	2s	-5	IIaD	M-5 →15m	Crw	H=48% T=19°C
	X Ant	10h05.7m	-29°57′		3:50	7:54	>240m/VV	4h41m W					<12?	MIRA M2			-4				
1711	R For	2h28.1m	-26°12′	MAR 17-18	1:12	2:27	15m/WEAK	5h55m W					~9	MIRA Ne			-5				VERY LITTLE IN BLUE!
	T Col	5h18.6m	-33°42′		1:39	1:57	>15m/STRONG	2h35m W	1″/clear	3.32	100/0.6	120/7.0	>9.5	MIRA M4e-M6	NeA	2s	-3	IIaD	M-5 →15m	Crw	H=44% T=20°C
	CH Pup	6h44.7m	-36°31′		2:05	6:05	240m/STRONG	0h17m W!					<12	MIRA —	NeA	2s	-1				AT MIN!
	R Car	9h32.2m	-62°42′		6:24	6:34	10m/WEAK	3h59m W					~8.7	MIRA M4-7e	NeA	2s	+1				
	S Car	10h09.1m	-61°25′		6:43	6:44	1m/WEAK	3h33m W					~7	MIRA K2e-M4e	NeA	2s	+3				
	XZ Cen	12h22.9m	-35°31′		6:54	7:09	15m/VV	1h45m W					9.0	MIRA M5			+5				
1712	T Cen	13h40.3m	-33°28′		7:48	7:56	2m,5m/VV	1h13m W					>8.0	MIRA K3e-M3			-5,4				BRIGHTER THAN BEFORE!
	R Cen	14h15.5m	-59°48′		8:05	8:13	2m,4m/VV	0h53m W					~7.2	MIRA M4-5e	NeA	2s	-2,1				
	RR Sco	16h55.4m	-30°31′		8:48	9:10	<30m/VV	0h48m E					≥10	MIRA M5e-M8e	NeA	2s	+1				H=44% T=18°; W=5-10

CRd = Cameron Reed Waterloo

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1978	DEC. 1978	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS	
1713	Cr 140-143	07h 20m·1	-31° 59′	17 APR	00 06	00 16	10 / 10m	01h 50m W	2" OK	352	100/0·8	120/7	8.70	A+G	Ne A	2s		IIa D	M-S 15m	F+CRd		-5
1714	-140	"	"		01:15	01:54	(34) / 30	03 29	" "				10.60	F+K								-5
	-152	07 19.9	-32 14		02:01	02:24	23 / 20						10.34	G3 v ?								-3
	-146	07 19.6	-32 06		02:26	02:35	/ ~~7~~						~~9.80~~	A3 V	No A	2s		"	"	"		-1
1715	HD 93205	10 43.7	-59 37		02:55	02:57	2	01:07 W										"	"	"		-5
	Tr 15- 2	10 43.7	-59 16		03:~~27~~ ½	03:27	3½	01 40W					~~8.5~~									-3
	-2	"	"		03:31	03:41	10	01 55 W	3"				9.7									-1
	-1	"	"		03:43	03:47	4	01.58 W					8.5									+1
	-3	"	"		03:48	04:24	35	02:35 W					10.9								myttle ct. Galaxy 45.	+3
	-16				04:26	05:16	~~50~~	03:28 W	3" THIN CIRRUS				10.6	red *								+5
	-15	10 43 3	-59 18		05:19	05 37	20	03 32 W					10.2									+6
1716	NGC 5281 -1	13h 45m 0	-62° 51′		05.54	05.55	50s	C1·0 W					6.79					"	"	"		-5
	-6	13h 44 8	-62° 51′		05.58	06:37	39 / 36m	02 ~~22~~ ?														-3
	-2	13 44 9	"		06:39	06:45	6 / 6m	01 56 W					8.88									+1
	-3	"	"		06.~~43~~ 47	06 51	4 / 3m	02 C1	PASSING CIRRUS				8.11								IMAGE BECOMIN	+2
	-11	"	"		06.52	C1 ?	31 / 30	02:34	3" "				10.06	red star								+3
	-14	"	"		07 25	07:49	24 / 24	03:02	3" "				10.26									+5
1717	HR ~~6555~~ 6131	16 27.5	-46° 13′		08 16	08:16	24s	00 44					5.92	~~B5 Ia+~~	No A	2s						+5
1718	~~Tr 7-6~~	~~07 26.5~~	~~-24 05~~		could not find								9.19									-4
	Tr 15-23	10 43.7	-59 17		23.53	00:47	50m	00 49E	<2"				11.4									-5
	Tr 7-6	07 26.4	-23 55	18 APR	00.55	~~C1 02~~	6m	02 34 W					9 2									
	Tr 7 -7	07 26.4	-23 55		01 08	02.20	70	03.52 W					11.67									+1
	-1	07 26.4	-23 54		02:25	02.35	10	04:08 W					9.59	~~B2~~	No A	2s						+3
1719	Tr 15 - 10	10 44.4	-59 17		02·56	04:20	80						11.82									-5
	-13	10 44.3	-59 17		04:23	04:59	36	03:15 W					10·93								CENTRAMINATED BY 14?	-3
	-14	10 44.4	-59 17		05.00	05 32	32m / 29	03 48 W					10.57									-1
	NGC 5281- 4	13 45.8	-62 53		05.40	06 32	50m	01:46 W					11.36									+1
	-10	13 45 5	-62 53		06.35	07:10	35 / 30	02:25 W					10 67									+3
	-8	"	"		07:11	07:29	18	02:44													$(8+9)\ B_5\ 10{\cdot}12\ B_y\ 11{\cdot}02$	+6

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL.	DEV.	OBS.	REMARKS
1720	NGC 6193 #1	16 39 9	-48 44	18 APR	08 02	08:02	20^s	00:22W	2"		100/0.8	120/7	5.8					IIaD	M-S 15"	F+CRL	TELESCOPE NOT STABLE IN RA
	"	"	"		08 03	"	17^s	"					"								ROT 90° GUIDED BY
	"	"	"		08 05	0805	17^s	00:25W					"								HAND
	#2	"	"		08:06	08 07	50^s	00:27W					7.0								
	#4	16 40.4	-48 47		08:14	08:38	24"	00:57W					10.55								
	5	"	"		08:42	09:14	30						10.75		NoA	2^s					TELESCOPE UNSTABLE IN RA
1721	NGC 2353 -118	7 14.0	-10 16	APR 18/19	23:22	00 23:42	80	2:10W	2"		100/0.3	120/7	11.7		NoA	2^s				F+CRd	
1722	Tr 7 - 9	7 26.8	-23 58	19 APR	01:03	02:35	92/90		2"				11.88								T = 15 C H = 22%
	Tr 15 - 4	10 44.8	-59 19		02:41	03:31	42"	01:48W	2"				11.16								
	-7	"	"		03:33	03:59	24	02:17W	2"				10.66								
	-26	10 44 5	-59 17		04:03	04:45	36	03:05W	2"		100/0.8	120/7	10.82								
1723	NGC 4463-5	12 28.4	-64 40	"	05:04	05:12	7[illegible]	01:46W	2" CIRRUS		100/1.2		8.62								
	-1	"	"		05:14	05:26	12	02:00W	"		100/1.2		9.06								
	-3	"	"		05:29	06:03	34/30		2" CIRRUS!!		100/0.8		10.71								
	NGC 6193-7	16 40.8	-48 44		06:07	06:16	9^m/6^m	01:17E	CLOUDS		100/0.8		8.66								
1724	NGC 4463-7	12 30.4	-64 47	20 APR	03:45	04:50	65/60^m	01:30W	2" CIRROS?		100/1.2	120/7	11.43					IIaD	M-S 15"	CRL	
1725	NGC 4463-A	12 [illegible]	[illegible]	"	05:24	07.17	113/66^m	03.56W	"			"	11.51								
	NGC 5606-3	14 27.6	-59 38	"	07.24	[illegible]	[illegible]	[illegible]				"	10.15								
	-4	"	"	"	08:08	08.52	44/40^m	03.33W					10.23								
~~1726~~	~~Tr 7 -3~~	~~07 27.0~~	~~-23 57~~	~~20 21 APR~~	~~23 57~~		~~15t^m~~						12.45					IIaD			
1726	Tr 7 - 2	07 26.9	-23 57	21 APR	00:23	01:00	37/35^m	02 45W	2"		100/0.8	120/1	11.41					IIaD	M-S 15^m	CRL	
	-11	07:27.0	"	"	01:05	01:41	41/41^m	03 32W	"		"	"	10.92								
1727	Tr 15 -16	10 45.1	-59 19	"	02:09	04:13	124/2^h	01 41W	"		"	"	11.12								
	NGC 4463-7	12 30 6	-64 45		04 33	05 35	62/66^m	02 13W	3"				11.43					"			
	NGC 6383-46	17 33.6	-32 31		06.53	09:25	152/150	01 04W	CLEAR DOME CLOSED				12.5								
1728	NGC 2571-10	08 18.8	-24 44	22 APR	01 18	01.46	8^m/8^m	02 37W	2" CIRRUS		100/0.8	120/7	11.6							C'd	
	NGC 4463-12	12 30 9	-64 56		01.54	04 [illegible]	135^m/2^h	02 47W			"	"	12.05								
1729	NGC 2571 -10	08 15 5	-24 39	22 APR	23.41	00 5.1	7t^m	01 55W	2 3"		100/0.8	120/7	11.61					IIaD			
1730	-11	"	"	23 APR	01:10	02:50	160^m/90^m	03:51W					11.84								
	NGC 4463 -6	12 29.7	-64 44	"	03;00	05:56	176/170^m	02:47W					12.51								

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1731	NGC 5749 - 13	14:48 3	-54° 25'	29 APR'74	06:01	06.48	47 / 40m	01.43 w	2-3"		100/C 8	120/7	11·1					II a D	M-S 15m	C Rd	T 7°C H-55% W 10 SOME HAZE -5
	-6	"	"	"	06.51	07.34	43 / 40m	02.30w	"		"	"	11 1					"	"	"	SOME HAZE, SKY BRIGHT -3
	NGC 6322 -75	17 18 3	-42 58	"	07:44	09.32	108m/90m	01 58W			"	"	11 8		NeA	2s		"	"	"	HAZE, CLOUDS -1
1732	Ru 55 -4	08. 11·9	-32 31	29/30 APR	23 36	00 26	50 / 50m	02 02w	~3"		100 / 08	120/7	11 15					II a D	M-S 15m	C Rd	T 10 H 54 SOME CIRRUS -5
	Tr 15 -18	10 45·0	-59 17	30 APR	00 35	03.35	3h	02.38w	"		"	"	12 36					"	"	"	-3
	Cr 258 -2	13 18 2	-60 55	"	04'00	05 50	104m/100m	02.14w	"		"	"	12 04					"	"	"	DIFFICULT TO ID! -1
	NGC (5316) -247	17 33 7	-32 18	"	06 10	09:14	184m/3h	01 29w			"	"	12 52		NeA	2s		"	"	"	TELESCOPE DRIVEN [illegible] +3 LAMPS OFF STANDARD +5
1733	Tr 16 104	10 43 9	-59 38	4 MAY	00 28	00 34	6m	00 08 E	~2"		100/C 8	120/7	8 91					II a D		C Rd	+5
	-100	10 43 9	-59 41	"	00 36	00 40	3m/5m				"	"	8 >2					"		"	NOT PROPERLY ON SLIT -5
	"	"	"	"	00:40	00:46	6m/5m	00:04 w			"	"	11					"		"	-1
	Tr 15 -33	10 44 0	-59 17	"	00:54	03·54	3h.	03.13 W			"	"	12·50					"		"	T=12 H=30 +1
	NGC 5316 -9	13 52 5	-61 46	"	04:02	05.26	84/80m	01.37w			"	"	11 74					"		"	-5
	NGC 6383 -40	17 32 5	-32 32	"	05 35	01.35	4h	02 05W			"	"	12.9								+5
1734	α Hya	09 26.4	-08 35	4/5 MAY	2350	2353	75s 30s 15s	30m E	2"/comm	2.35	100/0.8	120/7	3.4	K4 III	NeA	10s		II a C	1m48s		T=14°C H=45%
	HR 3314	08 24 7	-05 50	MAY	0002	0007	2m 1m 30s 15s	1h 43m W	"/comm	"	"	"	3 7	A2 V	"	"		"	[illegible]	"	
	HR 3549	09 39.2	-14 18	1974	0011	0019	2m 1m 30s 15s	0h 45m W	"				4 9	B5 V							
	HR 4119	10 21.3	-00 33		0045	0049	1m 30s 15s	25m W	"				4.7	B6 V							interrupted by clouds
	γ VIR A(V)	12 " 7	-01 26		0110		1m 30s 15s		1.5" /comm				4.5	F0 V							
	γ VIR B(S)	"	"			0118	45s 15s	76m E	1.5" /comm				4.5	F0 V							
								very	cloudy												
1735	[illegible] 227377	16 51 8	-41 50	"	0443	0445	1m ✓	1m 12m E	/comm	"	"	"	5 6	B0	"	"					T=12 H=45
	" 227371	16 52.9	-41 49		0453	0531	38m 60m		0.75 /comm				7.7	B							
2	" 227382	16 52.9	-41 49		0532	0536	4m ✓	1m 11m E	"				6.7	~~B5~~ B6							
	" 227364	16 52.7	-41 52		0537	0601	22m 30s	45m E	"				8.6	B1							
	" 370	16 52.8	-41 54		0603	0614	11m 15	35m E	<1" /comm				7.9	B9							
	" 382	16 53.8	-41 50		0615	0617	2m 3m	26m E	"				6.5	B3							
	383	16 52.9	-41 53		0618	0622	3.5 4m	23 E					6.7	B9							
	385	16 53.0	-41 53		0623	0643	2m 25	m E					8 5	B9							
	390	16 53 2	-41 50		0644	0650	2m ✓	3m W					7.0	w k							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
Lc																					
1733	SAO 227313	16 32 7	-41 52	7/5	0552	0603	11m ✓	16m W	<1"	3.35	100μ/0	120/0	8.1	F2	HeA	11s	Bpol	IIa-O	IIIaF	J	
cont	227374	16 38.1	-41 52	MAY 1974	0713	0717	4m 3m	1h 3m W	<1" clouds				10	F2	"		5m		7m 27°		
	227340	16 36.6	-41 45		0727	0731	11m 10	2h 49m W	"				8.1	G5							
	227374	16 38.1	-41 52		0737	0742	5m ✓	2h 55m W	"				6.3	F0.5							used 2 comp
	227345	16 34.0	-41 58		0745	10 0749	44m 36	3h 42m W	<1" clouds				7.5	G8							
1736	HR 2762	6- 17.1	-43 15	6/7	2320	2325	15m 30s 10	2h 25m W	2" few clouds	"	"		4.6	B8	"	"		IIa-O	"	J	used 2 comp 22°C 45% RH
	HR 2766	6 - -	-42 56	MAY	2332	2348	2h 5m ✓	2 45 W					6.2	M3							
	HR 2781	6 7 5	-3 55	1979	2356	2357	1h 2m 20s ✓	2 46 W					5.3	G1							
	½ LPup	6 7 42.6	-28 20		0004	0004	2m 1m ✓	2 53 W					6.2	K5							
	HR 3681	8 - 52.6	-49 33		0007	0010	15m 30s 60 ✓	2 51 W					4.4	B2							
	HR 3200	08 - 6.1	-47 13		0040	0043	3m 15m 30s ✓	2 48 W					4.6	B3							
1737	HR 3230		61 15	"	0052	0057	1m 2m 30s ✓	3h 1m W					5.2	F7							
	HR 3226	08 10.3	-42 58		0100	0103	15m 30s 60 ✓	3h 16m W					4.4	A3							
	HR 3574	09 55.8	-52 38		0109	0113	15m 30s 60 ✓	2 32m W					7.5	B5							
	HR 3642	09 06.6	-70 29		0116	0120	15m 30s 60 2m	2 27 W	/ double?				4.5	B2							
	KPyx	0 - -	-5 47		0126	0146	1m 4m 5s ✓	2 52m W	2" clouds				6.2	M2							
	CPsx	0 7 20.6	-5 53		0147	0206	1m 4m 5s ✓	3h W					6.4	M1							
1738	SAO 227315	16 50.4	-4 - -		0222	0228	30s 1m 2m ✓	4h 1m E					5.3	G5							
	227315	16 50.4	41 47		0234	0306	12m 46m	3h 31m E					5.6	B8							
	327	16 51.2	-41 37		0312	—	—	—	cloudy				7.6	B2							terminated by clouds
	(5 2200)																				
1739	SAO 227402	16 53	-42 21	7/5	0326	0336	11m 2m ✓	1h 32m W	2"				5.6	K5						J	
	375	16 52.7	-4 - -	MAY	0340	0344	" ✓	1h 46 W					5.3	B1.5							
	372	16 53 2	-42 7 8	1979	0346	0350	1m 2m 30s ✓	1h 55m W	2" clouds				6.5	F3							
	410	16 53 3	-42 28		0354	0426	30s 60	2h 51m W	2" clouds				9.4	B9							12 comparisons 9°C 30% RH
	356	16 52.1	-42 - -		0431	0445	14m ✓	3h 0 31					8.2	B8							
	43	16 5 -	-42 0 5		0446	0452	5m ✓	3h 17m W					7.6	M0							
	427	16 54.1	-4 - -		0454	0458	3m ✓	3h 54m W	3" clouds				8.5	B5							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R A	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
1740	[illegible]	07 06.5	-76 29	9/9	2306	2309	15m 6m 120m ✓	23m W	2" / cirrus	3 35	100μ / 8	120 / 2	4.5	B2	NeA	10s					W. 10m 1m 0.5m 4.5
	7 PUP X	07 12.3	-18 44	Trans 11%	2313	2315	2m 1m ✓	17m W	" "				5.6	O7					3m 0.4m		
	HR3747	09 26.5	-22 17		2321	2334	15m 3m 0.5m ✓	25m W	" "				5.9	K3							
	HR4110	10 27.0	-57 33		2337	2343	1m 2m 0.5m ✓	2m E	" "				5.3	F2							
	HR4338	10 29.6	-71°51'		2346	2355	15 30 1m ✓	15m E	" "				4.8	A2							
	HR4365	11 00.2	-62 21		2358	0007	1m 2m 4m ✓	39m E	" "				5.0	G5							
1741	HR4460	11 34.0	-54 08	"	0013	0021	4m 30m 5m ✓	52m E	" "				4.5	B7							
	ETA HYA	11 39.2	-34 39		0024	0026	15 30 6m ✓	54m E	" "				4.6	B9							
	HR4513	12 01.4	-52 [illegible]		0031	0034	2m 40 30m ✓	1h 12m E	" "				4.3	B6							
	HR4587	12 31.6	-61 35		0034	0040	15 30 12m ✓	1h 41m E	" "				4.6	B9							
	HR4618	12 45.3	-50 12		0043	0046	2m 40 15m ✓	1h 40m E	" "				4.5	B3							
	ACRUX	12 54.2	-57 [illegible]		0052	0053	2m ✓	1h 40m E	" "				4.5	B2							
1742	HR4746	13 04.5	-45 19	"	0113	0117	" ✓	2h E	" "	"	"	"	4.6	B5							
	HR4775	13 11.7	-59 41		0120	0123	" ✓	1h 27m E	" "				4.5	B7							
	4 CEN	13 32.6	-61 49		0126	0129	15 30 6m ✓	2h 2m E	" "				4.6	B5							
	HR5297	14 03.8	-53 18		0134	0146	45 90 180 ✓	2h 6m E	" "				5.7	G6							
	HR5781	15 34.6	-44 53		0514	0517	1m 2m ✓	5m W	" "				4.6	F0							Struggled clouds
1743	HR3018	07 44.6	-33 59	9/10	0041	0045	4m 3m ✓	3h 26m W	1.5 / cirrus	"	"	"	6.7	F8: [illegible]	"	"					
	HD [illegible]	08h 5.7	+22 [illegible]	[illegible]	[illegible]	0128	3m 1m ✓	1h 2m W	" "				5.5	F0							
	HR4607	12 19.7	-16 12		0135	0139	3m ✓	14m E	" "				6.6	F5							
	HD117176	13 11.0	+17 38		0139	0152	3m ✓	41m E	" "				8.2	F5							
	HD132475	14 58.7	-21 56		0151	[illegible]	3m 35m 2m ✓	2h E	" "				7.6	F3							
	HD140283	15 41.7	-10 51		0219	[illegible]	1m 15m ✓	2h 35m E	" "				7.7	F5							
5pts	HR5015	13 17.3	-15 14		0241	0253	1m 2m 2m ✓	6m	" "	1.5			5.4	G6 V							
	HR5582	15 45.8	+07 23		0251	0254	1m 2m 3m ✓	2h 15m E	" "	"			5.8	G0 V							15 mag star near 13h 25m 7°
	MOON	13 38.1	-6 [illegible]		0305	0308	2m 4m 5m ✓	2h 3m E	" "			cloudy	?	G2 V							
1744	SAO 227118	16 42.5	-41 06		0314	0320	3m 3m ✓	1h E	" "				7.3	K4							
	" " 123	16 42.6	-41 06		0418	[illegible]	3m 3m ✓	1h 5m E	" "				7.4	B6							
	" " 146	16 43.5	-40 50		0424	0432	1m 2m ✓	1h 41m E	" "				5.6	A5							
	" " 190	16 45.4	-41 36		0433	0439	1m 3m ✓	1h 41m E	" "			/ cirrus	7.3	B9							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER L.C.	OBJECT	R A	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1744	SAC 1726	16 46 8	-41 36	MAY	0441	0455	17m 20m	20m E		½			8.2	A5	NA	10m					
cont	215	16 46 6	-41 47	MAY 1971	0457	0513	16m 15m	15m E					7.1	B1					2m x 17		
	217	16 46 5	-42 51		0516	0531	15m 30m	30m E					8.2	B2							
	232	16 46 6	-40 57		0534	0552	17m 30m	34m E					8.1	F5							
	254	16 47.6	-40 46		0554	0609	17m 20m	16m E					8.5	F2							
	272	16 48.6	-41 57		0607	0615	6m ✓	5m E					7.3	G7							
	274	16 48.6	-43 25		0617	0623	6m ✓	6m					7.3	F2							
	278	16 48.6	-41 37		0628	0637	15m 15m	20m W					8.1	B8							
	294	16 49 3	-41 20		0713	0728	15m 15m	15m W					7.8	F5							
	316	16 49 5	-41 49		0735	0751	20m 30m	1h 34m W					8.0	K0							
	321	16 49 2	-40 45		0801	0811	15m 15m	1h 48m W					8.0	A1							
	333	16 50 3	-40 51		0818	0826	15m 15m	2h 1m W					7.2	K2							
	338	16 51.1	-40 42		0828	0841	5m ✓	2h 6m W					6.2	B1							
	339	16 51 9	-41 56		0833	0838	5m ✓	2h 15m W					6.3	K2							
	336	16 51.4	-41 46		0841	0848	6m ✓	2h 20m W					7.4	B5							
	343	16 51.7	-41 48		0851	0911	20m 30	2h 40m W					8.9	F5							
	341	16 51.8	-41 32		0913	0929	16m 30	3h 4m W					8.3	B0							
1745	351	16 51.2	-43 58		0941	0952	5m 15	3h 23m W					8.5	A0							
	357	16 52 3	-42 09		1004	1009	5m ✓	3h 36m W					7.4	A2							
	376	16 53.6	-41 48		1016	1027	12m 15m	4m W					7.8	F7							
	[illegible]				1035																
1746	SAC 1730	16 52.0	-41 52	MAY	1052	1054	0m 12m	1h 5m E						A9	NA	10m					
	377	16 52.8	-41 48	MAY 1971	1103	1120	15m	0h 58m E					7.6	B5 V							
1747	K Pyx	09 52.2	-25 49	MAY	1120	1134	3m 25m	3h 41m W					6.1	K0							
	C Pyx	09 10.8	-25 55		1137	1149	3m ✓	3h 41m W					6.9	F8							
	X Pyx	09 21.4	-28 47		1230	1251	10m ✓	3h 30m W					5.2	G9							
	HR 5019	13 13.5	-18 18		1242	1249	3m ✓	5m W					5.4	G6							
	HR 5863	15 45.3	+02 19		0252	0301	3m ✓	2h 15m E					5.0	G0							
	MOON	15 20.4	-13 30		0307	0315	5m 12m	2h 41m E					?	-2.4							focus varies
	SAC 1740	16 53.1	-41 50		0324	0340	25m	3h 34m E					4.7	G6							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1747	SAO 227382	16 53 1	-41 52	11/12	0545	0555	12m ✓	2h 22m E	1" clear	25c	5cm/1.2	f7/448	6.5	C8	NeA	CC		IIa-O	IIIa-J		
(Cont)	383	16 53.1	-41 54	(MAY 17TH)	0559	0619	15m 25m	2h 1m E	½" "				6.7	B8					6+15m		
	396	16 53 2	-41 52		0621	0648	26m 30m	1h 32m E	" "				6.95	A0+B8							
1748	393	16 53.4	-41 54	"	0645	0804	65m 70m	15m E	1½" "	"	"	"	8.0	B	"	"		"	"		
	400	16 53.5	-41 52		0624	0653	69m 80m	1h 14m W	1" clear				8.1	B8							
	313	16 50.4	-41 18		0736	0742	5m+ ✓+	1h 25m W	1" clear				5.3	O8							
	308	16 51.2	-41 54		0745	0806	25m +30	1h 48m W	" "				6.8	A0							
	336	16 51.6	-41 51		0807	0841	34m ✓	2h 24m W	1½" "				7.4	B0							
	356	16 52.2	-42 10		0844	0935	56m ✓	3h 17m W	" "				7.7	B8							
	374	16 52.8	-42 05		0936	0957	23m ✓	3h 42m W	"				6.9	B1							
	(5 Lup) 375	16 52.8	-42 25		1000	1006	6m ✓	3h 47m W	1½+ clear				5.3	B1							
	392	16 53.2	-42 31		1007	1025	18m ✓	4h 6m W	2" clear				6.5	F3							
	(5 Lup) 402	16 53.3	-42 24		1026	1038	12m ✓	4h 18m W	2" clear				5.0	K5							
1749	Moon	16 19.3	-16 02	12/13	0430	0431	1.2½ ✓	1h 9m E	Clear				?	G2V							
	SAO 227376	16 52.5	-41 41	MAY 1974	0444	0545	61m ✓	2h m E	1" clear				7.8	C9							
	381	16 52.5	-41 04		0553	0643	50m ✓	2h 8m W	" "				7.5	C0							
	384	16 52.6	-41 38		0646	0727	40m ✓	1h 12m W	1½" "				7.4	C0							
	425	16 53.3	-41 08		0729	0742	13m ✓	1h 27m W	"				6.0	O8							
	430	16 53.4	-42 04		0745	0823	38m ✓	2h 8m W	2" clear				6.9	B0							
	323	16 50.4	-40 39		0826	0954	1h28m 3h	3h 43m W	" " → cloudy				7.7	K0							
1750	ξ HyA	11 32.0	-31 44	13/14	0033	0047	14m	+m E	1" "				4.5	G7							
	HR3749	09 26 3	-22 17	MAY 1974	0051	0113	23m	2h 27m E	1" "				5.85	K3							
	HR4110	10 27.1	-57 32		0116	0122	m	1h 36m W	1½" "				5.3	F0							
	HR4138	10 31.0	-71 53		0125	0129	3m	1h 39m W	" "				4.8	A2							
	HR4325	11 06.1	-62 20		0134	0145	11m	1h 19m W	" "				5.6	G5							
	HR4460	11 34.1	-54 09		0147	0151	3m	56m W	" "				4.5	B9							
	θ HyA	11 39.1	-34 38		0158	0202	3m	1h 3m W	1½" "	"			4.6	B9							
	HR4618	12 07.3	-50 29		0205	0208	5m	42m W	" "				4.3	B6							
	HR4817	12 38.8	-39 55		0212	0215	3m	15m W	" "				4.6	Ap							
	HR4848	12 44.7	-56 19		0218	0221	3m	17m W	" "				4.5	B3							

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1150 cont	[illegible]	12 53.3	-59 02	15/14 [illegible]	[illegible]	[illegible]	3m / 4m	18m W	[illegible]	[illegible]	[illegible]	[illegible]	4.5	B5	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	HR 4940	12 05.3	-48 20		0234	0237	3m / 5m	15m W	[illegible]				4.6	B5							
151	[illegible]	5 05.0	-57 29	14/15	2311	2319	8m / ✓	5m W	[illegible]				5.2	F8							
	HR 2762	7 14.3	-48 14	May 1977	2324	2336	7m 3m / 3m ✓	3h 2m W					4.7	B8							
	HR 2766	7 18.7	-27 49		2339	0010	31m / ✓	3h 40m W					6.2	M3							
	HR 2881	7 30.0	-30 21		0013	0024	10m / ✓	3h 38m W					[illegible]	[illegible]							
	[illegible]	[illegible]	-28 [illegible]		[illegible]	[illegible]	31m / ✓	4h W					6.2	K5							13°C 29% Now [illegible]
	HR [illegible]	7 52.6	-29 33		[illegible]	[illegible]	[illegible] / ✓	3 [illegible] W					4.4	[illegible]							
	HR 3206	8 09.0	-47 13		[illegible]	[illegible]	[illegible] / ✓	3 45 W					4.0	B3							
	HR 3220	8 09.1	-61 15		[illegible]	[illegible]	[illegible] / ✓	3 58 W					5.0	F7							
	HR 3226	8 [illegible]	-42 58		[illegible]	[illegible]	[illegible] / ✓	4 05 W					4.7	A3							
	HR 3374	8 56.1	-52 37		0133	0138	5m / 4m	3 27 W					4.0	[illegible]							
	HR 4138	10 [illegible]	-71 54		[illegible]	[illegible]	7m / 6m	2 06 W					4.8	A2							
1752	[illegible]	16 5[illegible].2	-40 [illegible]		[illegible]	[illegible]	[illegible] / ✓	[illegible] E	[illegible]				[illegible]	[illegible]							
	[illegible]	16 53.8	-40 32		[illegible]	[illegible]	54m / ✓	2h 35m E	[illegible]				7.[illegible]	B[illegible]							
	[illegible]	16 54.4	-40 51		[illegible]	[illegible]	55m / ✓	1h 15m E					7.4	K5							
	464	16 55.2	-40 40		0457	0554	37m / ✓	35m E	[illegible]				[illegible]	[illegible]							
	473	16 55.5	-40 49		[illegible]	[illegible]	[illegible] / ✓	[illegible]					6.5	[illegible]							
	477	16 55.6	-41 09		[illegible]	[illegible]	80m	[illegible]					7.7	[illegible]							
	479	16 55.7	-40 [illegible]		[illegible]	[illegible]	4m 50m	[illegible] W					[illegible]	[illegible]							[illegible]
	[illegible]	16 55.6	-42 [illegible]		[illegible]	[illegible]	120m	[illegible] W	[illegible]				7.8	B4							
	118	16 [illegible]	-41 [illegible]		[illegible]	[illegible]	[illegible] / ✓	4h 18m W	[illegible]				[illegible]	A4							11°C 28% Sight
1753	HR 3538	08 53.2	-05 19	15/16	0100	0140	40m / ✓	3h 35m W	2h [illegible]		"	"	6.7	G3	"	"		"	"	[illegible]	13°C 23% [illegible]
	HR 3750	09 26.7	-05 56	May 1977	[illegible]	[illegible]	[illegible] / ✓	[illegible] W					[illegible]	[illegible]							
	HR 4657	12 14.1	-10 11		[illegible]	[illegible]	[illegible] / ✓	[illegible] W					[illegible]	F8 [illegible]							
	[illegible]	16 42.7	-41 06		[illegible]	[illegible]	[illegible] / ✓	[illegible] E	[illegible]				[illegible]	[illegible]							
	146	16 43.2	-40 50		[illegible]	[illegible]	[illegible] / ✓	[illegible] W	[illegible]				[illegible]	[illegible]							
	[illegible]	16 45.4	-41 36		[illegible]	[illegible]	[illegible] / ✓	[illegible] W	[illegible]				7.8	[illegible]							
	[illegible]	16 [illegible]	-42 [illegible]		[illegible]	[illegible]	[illegible]	[illegible] W	[illegible]				7.4	[illegible]							

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 235
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1754	ζ Dor	05 00.4	-57 27	17/18	[illegible]	[illegible]	[illegible]	[illegible]	1.5 [illegible]	3 35	[illegible]	[illegible]	[illegible]	F8	[illegible]	10"		[illegible]	[illegible]	[illegible]	[illegible]
	HR3018	07 44.9	-34 08	MAY [illegible]	[illegible]	[illegible]	[illegible] ✓		—				6.7	F8 [illegible]					[illegible]		11°C 30% Sample
	HR3538	08 53.1	-5°20'		[illegible]	[illegible]	[illegible] ✓	[illegible]	[illegible]				[illegible]	[illegible]							
	HR 3750	09 26.5	-5 57		[illegible]	[illegible]	[illegible] ✓	[illegible]					[illegible]	[illegible]							
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible] ✓	[illegible]	[illegible]				[illegible]	[illegible]							
	[illegible]	17 00.3	-40 01		[illegible]	[illegible]	[illegible] ✓	[illegible]	[illegible]				[illegible]	[illegible]							
	552	17 00.0	-42 02		[illegible]	[illegible]	[illegible] ✓	[illegible]					7.45	[illegible]							
	481	16 56.0	-42 55		0301	0316	[illegible] ✓	[illegible]					[illegible]	[illegible]							
	479	16 55.6	-40 29		[illegible]	[illegible]	[illegible] ✓	2 32 E					[illegible]	[illegible]							
	477	16 55.5	-41 08		[illegible]	[illegible]	[illegible] ✓	2 01 E					7.7	[illegible]							
	47[illegible]	16 55.4	-40 48		[illegible]	[illegible]	[illegible] 2	[illegible]					[illegible]	[illegible]							
1755	464	16 55.2	-40 38	"	0407	0421	[illegible] ✓	[illegible]					[illegible]	[illegible]							
	443	16 54.4	-40 57		0424	0431	[illegible] ✓	1h 26m E					7.4	[illegible]							
	425	16 53.8	-41 07		0434	[illegible]	[illegible] ✓	[illegible]					[illegible]	[illegible]							
	424	16 53.8	-40 30		0442	0450	[illegible] ✓	[illegible]					7.3	[illegible]							
	381	16 52.8	-41 03		0453	0501	[illegible] ✓	55m E					[illegible]	[illegible]							
	384	16 52.9	-41 26		[illegible]	[illegible]	[illegible] ✓	46m E					7.4	[illegible]							
	327	16 51.0	-41 35		[illegible]	[illegible]	30m ✓	9m E					[illegible]	[illegible]							
	341	16 51.8	-41 32		[illegible]	[illegible]	20m ✓	14m W					[illegible]	[illegible]							
	365	16 52.5	-41 31		[illegible]	[illegible]	[illegible] ✓	[illegible] W					9.9	[illegible]							
	367	16 52.6	-41 16		[illegible]	[illegible]	[illegible]	[illegible] W					8.5	[illegible]							
	369	16 52.7	-41 13		[illegible]	[illegible]	[illegible] ✓	[illegible] W					8.6	[illegible]							
	378	16 52.7	-40 [illegible]		[illegible]	[illegible]	[illegible] ✓	[illegible] W					8.5	[illegible]							
	[illegible]	16 52.9	-40 57		[illegible]	[illegible]	[illegible] ✓	[illegible] W					[illegible]	[illegible]							
	391	16 53.1	-41 00		[illegible]	[illegible]	[illegible] ✓	[illegible] W					8.7	[illegible]							
	[illegible]	16 53.0	-41 30		[illegible]	[illegible]	[illegible] ✓	[illegible] W					8.2	[illegible]							
	[illegible]	16 53.2	-41 2[illegible]		[illegible]	[illegible]	[illegible] ✓	[illegible] W					[illegible]	[illegible]							
	[illegible]	16 54.6	-40 18		[illegible]	[illegible]	✓	[illegible] W					[illegible]	[illegible]							[illegible]

✓ GOOD
✓✓ EXCELLENT

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1979	DEC 1979	DATE U.T. 1979	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR. MIN	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB Mos	EMUL	DEV	OBS	REMARKS
1756	RV Pup	6h 4.m9	-42° 20′	MAY 19-20	1:06	1:26	20/VV	5h 48.m1 W	2"/CIRRUS	3.32	100/0.6	120/7.0	~9	MIRA M4-Te	NeA	2s	-5	IIaD	M-5 →15m	Crw	H=15% T=17°C
	AS Pup	8h 09.m0	-38° 06′		1:36	2:27	~50/VV	5h 22.m1 W	/CLEAR				~10	MIRA M7e	NeA	2s	-3				
	R Car	9h 32.m0	-62° 42′		2:45	3:00	15/VV	5h 32.m1 W					~9	MIRA M4-7e	NeA	2s	-1				
	S Car	10h 09.m0	-61° 25′		3:16	3:24	1,2,3/VV	4h 20.m1 W					~7.5	MIRA K2e-M4e2	NeA	2s	+1,3,5				
1757	X2 Cen	12h 23.m2	-35° 30′		5:07	6:37	90.m/VV	5h 19.m1 W					~11	MIRA M5	NeA	2s	-5				
	T Cen	13h 40.m6	-33° 28′		6:55	7:10	4,8/V	4h 34.m1 W					~8.5	MIRA K8e-M3	NeA	2s	-3,-2				
	R Cen	14h 15.m5	-59° 48′		7:17	7:27	3,6/WEAK	4h 17.m1 W	6 SL				~8	MIRA M4-Se	NeA	2s	+1,+3				H=15% T=15°C
1758	T Col	5h 18.m5	-33° 42′	MAY 20-21	23:50	00:05	15/VV	5h 55.m1 W	1"/CLEAR	3.32	100/0.6	120/7.0	~9	MIRA M4e-M6	NeA	2s	-5	IIaD	M-5 →15m	Crw	H=19% T=16°C
	ℓV Pup	6h 4.m9	-42° 20′		00:11	00:26	15/VV	4h 52.m1 W					8.7	MIRA M4-Te	NeA	2s	-3				
	R Car	9h 32.m0	-62° 42′		00:46	01:08	~20/VV	2h 45.m1 W					9	MIRA M4-7e			-1				
	S Car	10h 09.m0	-61° 25′		01:14½	01:20	~5/VV	2h 20.m1 W					7.7	MIRA K2e-M4e	NeA	2s	+1				
1759	X Ant	10h 05.m6	-29° 57′		01:31	04:49	>180/WEAK	5h 51.m1 W					~12	MIRA M2			+3				CIRRUS!
	T Cen	13h 40.m6	-33° 28′		06:01	06:12	10/WEAK	3h 40.m1 W	SL				8.5	MIRA K8e-M3	NeA	2s	-5				
	R Cen	14h 15.m5	-59° 48′		06:22	06:38	16/WASH OUT	3h 32.m1 W					8.5	MIRA M4-Se			-3				CIRRUS!
	RS Sco	16h 54.m0	-45° 05′		07:00	07:09	1,2,3/V	1h 25.m1 W					~7.5	MIRA M5-Se	NeA	2s	-2,-1,+1				H=17% T=14°C
	RR Sco	16h 55.m4	-30° 31′		07:18	07:25	1,1½,2/V	1h 40.m1 W					>7.0	MIRA M5e-Se	NeA	2s	+2,+3,+5				CIRRUS ABSORBS!
1760	T Col	5h 18.m5	-33° 42′	MAY 21-22	23:45	00:00	>15/VV	5h 52.m1 W	2"/CLEAR	3.32	100/0.6	120/7.0	9	MIRA M4e-M6	NeA	2s	-5	IIaD	M-5 →15m	Crw	H=22% T=14°C
	X Ant	10h 05.m6	-29° 57′		00:10	04:25	255/V	5h 31.m1 W					~12	MIRA M2	NeA	2s	-3				IT CLOSE!
	T Cen	13h 40.m6	-33° 28′		04:35	04:47	>10/VV	2h 19.m1 W					~8.5	MIRA K8e-M3			-1				
	R Cen	14h 15.m5	-59° 48′		04:54	05:05	10/V	2h 02.m1 W					~8.5	MIRA M4-Se	NeA	2s	+1				
	RS Sco	16h 54.m0	-45° 05′		05:22	05:25	3/VV	0h 16.m1 E					~7.5	MIRA M5-Se	NeA	2s	+3				
	RR Sco	16h 55.m4	-30° 31′		05:31	05:33	2/VV	0h 09.m1 E					~7.0	MIRA M5e-Se			+5				
1761	R Cen	14h 15.m5	-59° 48′		06:39	07:02	>20/VV	3h 58.m1 W					8.5	MIRA M4-Se	NeA	2s	-5				H=22% T=15°C CUT SHORT BY CLOUD!
	T Cen	13h 40.m6	-33° 28′		07:12	07:22	<20/WEAK	4h 54.m1 W	SL				8.5	MIRA K8e-M3			-3				
1762	T Cru	22h 24.m4	-37° 41′		09:15	09:45	30/WEAK	1h 26.m1 E					<9.5?	MIRA M0e	NeA	2s	-5				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	1979 DATE U.T	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
				June									< B7								
1763	S Cru	12 53 05	-57 19.0	5-6	01 31 20	03 12 10	100m/s / weak	2:32 W	2"/good	2.20	50μ/1.2	67/44	7.7	cepheids F-G sg	NeA	60s		IIa-O	M-S 61 15m	Guc	1/2 moon
	W Sgr	12 03 41	-29 35.3	"	03 47 40	04 04 10	7m, 2m/wak	1:45 E	"	"	"	"	5.9								
	X Sgr	17 46 15	-27 49.7	"	04 14 30	04 37 50	4m, 6m, 2m/ 10m	0:50 E	"	"	"	"	5.7								clouding 1.25—
	Y Sgr	18 20 09	-12 52.5	"	04 56 00	05 36 03	40m/good	0 30 E	"	"	"	"	7.0	"							
1764	ℓ Car	09 44 41	-62 34.6	6-7	23 45 30	00 19 00	5m, 8m, 12m/ 15m	2:50 W	2"/good	2.20	50μ/1.2	67/44	5.4	cepheids F-G sg	NeA.	60s		IIa-O	M-S 61 15m	Guc	some cloud
	S Mus	12 11 36	-70 02.1	"	00 32 00	01 19 10	47m/5 weak	1:33 W	1½"	"	"	"	7.6	"							in north
	R Mus	12 40 43	-69 17.5	"	01 34 00	02 19 30	45m/5 weak	1:56 W	1"	"	"	"	7.5	"							
	S TrA	15 59 15	-63 43.5	"	03 31 00	03 45 00	66m/5 weak	0:01 W	"	"	"	"	7.6	"							clear
	S Nor	16 17 05	-57 51.4	"	04 42 30	06 20 20	12m/5 weak	2:18 W	"	"	"	"	7.7	"							
	AP Sgr	12 11 45	-23 07.7	"	06 34 00	08 34 00	120m/5 strong wk	2:40 W	"	"	"	"	8.2	"							
	η Aql	19 51 25	+00 56.8		08 42 30	08 47 30	5m/20m weak	1:11 W	"	"	"	"	5.0								
1765	T Cru	12 20 09	-62 07.9	7-8	23 43 00	01 36 30	13m/s weak	1:36 W	1½"/good	2.20	50μ/1.2	67/4.4	7.2	cepheids F-G sg	NeA	60s		IIa-O	M-S 61 15m	Guc	moon 1/4 x gib
	V Cen	14 31 23	-56 47.9	"	01 52 30	03 52 30	120m/s weak	1:43 W	"	"	"	"	8.1	"							clear
	U Sgr	18 30 32	-19 08.7	"	05 47 00	07 07 15	122m/s weak	0:20 W	"	"	"	"	8.2	"							gusty
	FF Aql	18 57 19	+17 19.8	"	07 22 30	07 54 10	30m/60m weak	0:34 W	"	"	"	"	6.2	"							~30-32
	U Aql	19 28 14	-07 05.9	"	08 05 30	09 05 30	60m/10m weak	2:18 W		"	"	"	7.5	"							
1766	V Cen	14 31 23	-56 47.9	8-9	05 22 00	07 22 00	120m/weak	5:10 W	2"-10"/good	2.20	50μ/1.2	67/44	7.7	cepheids F-G sg	NeA	60s		IIa-O	M-S 61 15m	Guc	high winds 40 kt (clouds) closed most of night
1767	T Cru	12 20 01	-62 01.9	9-10	23 36 00	01 36 30	120m/5 wk	1:33 W	2"-3"/good	2.20	50μ/1.2	67/44	7.6	cepheids F-G sg	NeA	60s		IIa-O	61 15m	Guc	
	R Cru	12 22 35	-61 30.8	"	01 33 00	04 03 30	150m/s weak	4:10 W	2"/good	"	"	"	7.7	"							windy (35-40) then clear — clouds
	η Aql	19 51 25	+00 56.7	"	06 55 00	07 12 00	23m/5 wk 2m	1:50 W	2"/good	"	"	"	5.0	"							clear — clouds
1768	S Mus	12 11 36	-70 02.1	10-11	23 [illegible] 00	01 03 30	73m/5 fine	1:20 W	2"/good	2.20	50μ/1.2	67/4.4	7.5	cepheids F-G sg	NeA	60s		IIa-O	M-S 61 15m	Guc	full moon
	R TrA	15 19 48	-66 15.0	"	01 11 30	03 40 30	90m/5 weak	0:03 W	1½"	"	"	"	7.5	"							clear
	S TrA	15 57 15	-63 43.5	"	03 47 00	04 02 00	5m/fine	0:34 W	"	"	"	"	7.2	"							
	FF Aql	18 57 19	+17 19.8	"	05 30 00	06 [illegible] 30	60m/strong	0:04 W	2"	"	"	"	6.1	"							
	η Aql	19 51 25	+00 56.8	"	06 44 00	07 01 00	2m/steady	0.16 E	"	"	"	"	5.0	"							

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1769	R Mus	12 40 43	-69 17.5	11-12	23 53 30	00 00 00	6m/s weak	0:54W	1"/good	2.80	50µ/1.2	67/44.4	7.5	cepheids F-G sg	spect scans	30m 14V	Neon 60s	IIa-O	IIIF 15m	Gu	clear
	S Cen	12 53 05	-62 17.0	"	01 05 30	02 05 00	6m/weak	1:47W	"	"	"	"	7.5	"	"	"	"	"	"	"	evening glow
	V Cen	14 31 23	-56 47.7	"	02 13 00	03 30 00	77m/weak	1:30W	"	"	"	"	8.0		"	"	"	"	"	"	moon
	S Nor	16 17 05	-57 51.4	"	03 32 00	04 33 00	55m/fine	0:53W	"	"	"	"	7.3		"	"	"	"	"	"	
	χ Nor	16 17 01	-50 09	"	05 46 00	06 01 00	15m/fine	2:21W	2"/good	"	"	"	5.7	F8 Iab	"	"	"	"	"	1	
	β Aql	21 31 34	-05 35	"	06 16 00	06 31 00	5m/fine	2:35E	"	"	"	"	3.7	GO Ib	"	"	"	"	"	"	
	FF Aql	18 57 19	+17 17.8	"	06 33 00	07 00 00	27m/fine	0:38W	1½"/good	"	"	"	6.1	cepheids F-G sg	"	"	"	"	"	"	
	η Aql	19 51 25	+00 56.8	"	07 10 00	07 18 00	8m/strong	0:02W	"	"	"	"	4.5		"	"	"	"	"	"	
	9 Peg	21 43 36	+17 18	"	07 32 30	07 44 00	12m/s weak	1:24E	"	"	"	"	5.5	G5 Ib	"	"	"	"	"	"	
	α Aqr	22 01 36	-00 23	"	07 52 00	07 58 00	6m/fine	1:30E	"	"	"	"	3.7	G2 Ib	"	"	"	"	"	"	
1770	L Car	09 44 41	-62 24.6	12-13	23 40 00	23 54 00	14m/s. weak	2:47W	1½"/good	2.80	50µ/1.2	67/44.4	5.1	cepheids F-G sg	spect scans	30m 14V	Neon 60s	IIa-O	IIIF 15m	Gu	
	U Car	10 56 56	-59 37.1	"	00 05 00	01 15 30	73m/weak	2:57W	"/some cirrus	"	"	"	6.6		"	"	"	"	"	"	scattered cirrus
	S Mus	12 11 36	-70 03.1	"	01 27 30	02 45 00	80m/fine	3:15W	2"/cirrus	"	"	"	7.1		"	"	"	"	"	"	evening glow moon
	R TrA	15 17 42	-66 25.6	"	03 01 00	04 11 00	100m/fine	2:05W	1½"/clear	"	"	"	7.5		"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	06 03 30	06 13 00	10m/fine	1:06W	"	"	"	"	5.2		"	"	"	"	"	"	X-ylled problem
	W Sgr	18 05 41	-29 35.3	"	06 20 00	06 33 00	13m/fine	1:09W	"	"	"	"	5.5		"	"	"	"	"	"	
1771	ξ Pup	07 41 17	-24 52	13-14	23 27 00	23 30 00	3m/fine	4:23W	1½"/good	2.80	50µ/1.2	67/44.4	4.7	G2 Ib	spect scans	30m 14V	Neon 60s	IIa-O	IIIF 15m	Gu	
	31 Mon	08 47 47	-07 00	"	23 41 30	23 52 30	11m/s weak	3:53W	1"/good	"	"	"	5.6	G1 Ib	"	"	"	"	"	"	some cirrus, wind 5-10
	ER Car	11 08 56	-58 43.4	"	00 11 00	02 11 00	120m/fine	3.40W	"	"	"	"	7.8	cepheids F-G sg	"	"	"	"	"	"	
	S TrA	15 51 15	-63 43.5	"	02 32 00	03 55 00	83m/fine	0.40W	2"/good	"	"	"	7.5	"	"	"	"	"	"	"	
	S Nor	16 17 05	-57 51.4	"	05 41 30	06 32 00	55m/weak	3.03W	2"/cirrus	"	"	"	7.2		"	"	"	"	"	"	evening gusts pm
	V Sgr	18 20 09	-18 52.5	"	07 01 30	07 43 00	42m/fine	2.67W		"	"	"	7.0		"	"	"	"	"	"	
	FF Aql	18 57 19	+17 17.8	"	07 51 00	08 23 00	32m/fine	2:10W	1½/fair	"	"	"	6.1								
	η Aql	19 51 25	+00 56.8	"	08 37 00	08 42 00	5m/s. weak	1:30W	2"/fair				4.6								
1772	L Car	09 44 41	-62 24.6	14-15	23 33 00	23 45 30	12m/fine	3:42W	2"/good	2.80	50µ/1.2	67/44.4	4.8	cepheids F-G sg	spect scans	30m 14V	Neon 60s	IIa-O	IIIF 15m	Gu	clear but
	ER Car	11 08 56	-58 43.4	"	23 56 00	02 05 00	189m/fine	3.40W	"	"	"	"	7.8		"	"	"	"	"	"	quite windy
	V Cen	14 31 23	-56 47.7	"	03 16 00	05 01 00	105m/fine	3:20W	"	"	"	"	7.6	"	"	"	"	"	"	"	~30-40

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1772 cont	X Sgr	17 46 15	-27 49.7	14-15	05 46 30	05 58 00	12m/S. Strong	1:00W	2"/good	2.80	50μ/1.2	67/4.48	5.6	cepheids EGsg	spot sens	30m 14V	NeA 60s	IIa-O	M-S 67F 15m	Gu	seeing very poor
	W Sgr	18 03 41	-29 35.3	"	06 04 30	06 20 00	16m/fine	1:05W	2"/thin cirrus	"	"	"	5.8	"	"	"	"	"	"	"	
	V Sgr	18 20 09	-18 53.5	"	06 30 00	07 16 00	46m/fine	1:40W	"	"	"	"	6.8	"	"	"	"	"	"	"	
	AP Sgr	18 11 45	-23 07.7	"	07 38 30	07 45 00	127m/S. weak	4:20W	"	"	"	"	8.1	"	"	"	"	"	"	"	
1773	R Cru	12 32 25	-61 30.8	15-16	23 31 00	01 08 00	97m/fine	1:40W	1½"/clear	2.80	50μ/1.2	67/4.48	7.5	cepheids EGsg	spot sens	30m 14V	NeA 60	IIa-O	M-S 67F 15m	Gu	seeing pathetic once again!
	R Mus	12 40 43	-67 17.5	"	01 15 30	02 10 00	55m/fine	2:21W	2"-3"/clear	"	"	"	7.0	"	"	"	"	"	"	"	
	STrA	15 59 15	-63 43.5	"	02 16 00	03 03 00	47m/weak	0:03E	3"/clear	"	"	"	6.8	"	"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	05 04 00	05 16 00	12m/fine	0:21W	2"/clear	"	"	"	5.7	"	"	"	"	"	"	"	
	W Sgr	18 03 41	-29 35.3	"	05 33 30	05 41 30	18m/fine	0:30W	"	"	"	"	5.9	"	"	"	"	"	"	"	
	V Sgr	18 20 09	-18 52.5	"	05 50 30	06 42 30	38m/fine	1:02W	"	"	"	"	6.2	"	"	"	"	"	"	"	
	U Sgr	18 30 38	-19 08.7	"	06 40 30	08 20 00	100m/fine	2:50W	"	"	"	"	7.4	"	"	"	"	"	"	"	
	U Aql	19 28 14	-07 06	"	08 36 00	10 12 00	96m/fine	3:35W	1½"/clear	"	"	"	7.7	"	"	"	"	"	"	"	
1774	T Cru	12 20 09	-62 09.9	17-18	33 78 00	00 30 00	63m/weak	1:02W	3"/clear	2.22	50μ/1.8	67/4.48	7.7	cepheids EGsg	spot sens	30m 14V	NeA 60	IIa-O	M-S 67F 15m	Gu	seeing & scintillation bad.
	S Cru	12 53 05	-58 19.0	"	00 45 30	01 49 00	64m/weak	2:00W	3"/"	"	"	"	7.7	"	"	"	"	"	"	"	
	V Cen	14 31 23	-56 47.9	"	02 02 30	03 37 00	75m/weak	2:10W	1½"/"	"	"	"	8.0	"	"	"	"	"	"	"	
	S Nor	16 17 05	-57 51.4	"	03 53 30	04 53 30	60m/weak	1:40W	"	"	"	"	7.7	"	"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	05 26 00	05 36 00	2m/weak	0:05W	"	"	"	"	5.6	"	"	"	"	"	"	"	
	W Sgr	18 03 41	-29 35.3	"	05 44 00	05 52 00	3m 6m/fine	0:42W	"	"	"	"	5.1	"	"	"	"	"	"	"	
	V Sgr	18 20 09	-18 52.5	"	05 57 00	06 11 00	14m/weak	0:55W	"	"	"	"	6.6	"	"	"	"	"	"	"	
	AP Sgr	18 11 45	-23 07.7	"	06 25 30	07 40 00	75m/fine	2:30W	"	"	"	"	7.8	"	"	"	"	"	"	"	thick cirrus - stopped
1775	ER Car	11 08 56	-58 43.4	19-20	23 29 30	00 44 30	75m/fine	2:42W	2"/clear	2.80	50μ/1.8	67/4.48	7.9	cepheids EGsg	spot sens	30m 14V	NeA 60s	IIa-O	M-S 67F 15m	Gu	
	R Cru	12 22 25	-61 30.8	"	00 51 30	01 44 30	53m/weak	2:38W	"	"	"	"	7.5	"	"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	04 24 00	04 33 00	9m/strong	0:00E	"	"	"	"	5.6	"	"	"	"	"	"	"	
	U Sgr	18 30 38	-19 08.7	"	04 46 00	06 11 00	83m/weak	0:50W	"	"	"	"	6.6	"	"	"	"	"	"	"	slight cirrus!
	U Aql	19 28 14	-07 06	"	06 25 30	07 35 00	70m/strong 94m/fine	1:15W	"	"	"	"	7.7	"	"	"	"	"	"	"	
	η Aql	19 51 25	+00 56.8	"	07 45 00	07 57 00		1:15W	"	"	"	"	4.7	"							

NUMBER	OBJECT	RA	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL/CORR.	H.A. END	SEE./TRANS.	CAM. FOCUS	SLIT	GRATING/TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1776	l Car	09 44 41	-62 24.6	20-21	23 35 30	23 52 00	10m 5-6m fine	3:15W	2"/clear	2.80	50μ/1.8	67/4.4	1.7	cyl heads F-G sg	spot sens	30m 14V	Neon 60s	IIa-O	IIIa-F 67F 15m	G vc	
	U Cen	10 56 56	-59 37.1	"	00 00 00	00 46 00	40m weak	3:00W	"	"	"	"	7.2	"	"	"	"	"	"	"	
	S Cru	12 53 05	-62 19.0	"	00 55 00	02 15 00	20m fine	2:32W	1½"/clear	"	"	"	7.7	"	"	"	"	"	"	"	scattered cirrus
	V Cen	14 31 23	-56 47.9	"	02 22 00	04 02 00	100m fine	2:42W	"/some cirrus	"	"	"	8.1	"	"	"	"	"	"	"	
	S TrA	15 59 15	-63 43.5	"	04 41 00	05 09 00	50m weak	2:21W	"	"	"	"	7.0	"	"	"	"	"	"	"	
	AP Sgr	18 11 45	-23 07.7	"	05 26 00	07 40 00	134m weak	2:40W	"/cirrus	"	"	"	7.8	"	"	"	"	"	"	"	with cloud ~8.5
	FF Aql	18 57 19	+17 19.8	"	08 05 00	08 32 00	27m fine	2:46W	"	"	"	"	6.1	"	"	"					
1777	U Cen	10 56 56	-59 37.1	21-22	23 37 00	00 49 00	70m weak patchy	3:05W	pathetic decay	2.80	50μ/1.8	67/4.4	7.6	cyl heads F-G sg	spot sens	30m 14V	Neon 60s	IIa-O	IIIa-F 67F 15m	G vc	seeing 3" suddenly terrible from 23 to 24
	R Cru	12 22 25	-61 30.8	"	01 01 30	01 59 00	58m/s weak	2:50W	2"-3"/clear (!)	"	"	"	7.6	"	"	"	"	"	"	"	
1778	S Hyi	02 11 36	-70 02.1	22-23	23 33 30	00 13 00	40m fine	1:20W	1½"/clear	2.80	50μ/1.8	67/4.4	7.2	cyl heads F-G sg	spot sens	30m 14V	Neon 60s	IIa-O	IIIa-F 67F 15m	G vc	
	T Cru	12 36 01	-62 01.9	"	00 20 30	01 30 00	70m fine	2:45W	2 ½"/clear	"	"	"	7.6	"	"	"	"	"	"	"	seeing generally bad
	S TrA	15 59 15	-63 43.5	"	01 43 00	02 46 00	47m fine	2:01W	"	"	"	"	7.2	"	"	"	"	"	"	"	
	R TrA	15 17 48	-66 25.6	"	02 47 00	03 57 00	70m fine	2:26W	"	"	"	"	7.7	"	"	"	"	"	"	"	
	HD 172854	18 37.5	-23 12.0	"	04 36 00	05 15 00	45m fine	0:02E	1/2"/clear	"	"	"	7.1	F5 IV	"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	05 24 30	05 46 00	7m 6-8m fine	1:12W	"	"	"	"	5.6	cyl hds F-G sg	"	"	"	"	"	"	
	γ Aql	19 75.6	+10 0.20	'	05 53 30	06 06 00	6m 6m fine	0:01E	"	"	"	"	5.3	F2 IV	"	"	"	"	"	"	
	W Aql	19 38 19	-07 06	"	06 16 30	07 46 00	40m/s strong	1:37W	"	"	"	"	7.8	cyl hds F-G sg	"	"	"	"	"	"	
	η Aql	19 51 25	+00 57	"	07 56 00	08 30 00	5m 4m/6m	1:30W	"	"	"	"	5.0	"	"	"	"	"	"	"	
	ζ Aql	21 30 24	-05 36	"	08 12 30	08 16 00	10m 12m fine	0:01W	"	"	"	"	3.7	G0 IV	"	"	"	"	"	"	
	S Sge	19 55 05	+16 34.5	"	08 22 00	09 01 00	30m fine	2:36W	"	"	"	"	6.5	cyl hds F-G sg	"	"	"	"	"	"	
1779	ER Car	11 02 56	-58 43.4	23-24	23 37 00	01 17 00	10m fine	3:30W	1½"/clear	2.80	50μ/1.8	67/4.4	8.1	cyl heads F-G sg	spot sens	30m 14V	Neon 60s	IIa-O	IIIa-F 67F 15m	G vc	seeing very inconsistent (1"-6")
	R Cru	12 22 25	-61 30.8	"	01 32 30	03 12 00	105m weak	4:15W	"	"	"	"	8.0	"	"	"	"	"	"	"	
	R TrA	15 17 48	-66 25.6	"	03 23 00	04 22 00	65m fine	2:30W	~3"/clear	"	"	"	7.6	"	"	"	"	"	"	"	
	X Sgr	17 46 15	-27 49.7	"	04 47 00	04 52 00	11m fine	0:39W	"	"	"	"	5.5	"	"	"	"	"	"	"	
	W Sgr	18 03 41	-27 35.3	"	05 07 00	05 21 00	14m fine	0:40W	"	"	"	"	5.8	"	"	"	"	"	"	"	
	U Sgr	18 30 58	-19 07	"	05 33 00	07 03 00	30m fine	1:55W	2"/clear	"	"	"	6.1	"	"	"	"	"	"	"	
	γ Peg	21 43 34	+17 31	"	07 15 00	07 25 00	10m fine	2:50E	"	"	"	"	2.5	G5 IIb	"	"	"	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1779	χ Aql	22 04 06	-00 20	23-24	01 33 00	01 35 00	5m/fine	0:06E	2½"/clear	3.80	50µ/1.8	67/4.48	3.7	G2Ib	spot	30m	NeA	M-S	IIIa-O		
con't	S Sge	19 55 05	+16 34.5	"	07 50 30	08 25 00	25m/fine	1:53W	"	"	"	"	6.5	cepheid F-G sg	sens	14V	60s	67F15m	Gu		
1780	R Mus	12 40 43	-69 17.5	24-25	23 33 00	00 30 00	57m/fine	1:16W	2"/clear	3.60	50µ/1.8	67/4.48	7.3	cepheid F-G sg	spot 300	30m 14V	NeA 60s	IIIa-J	M-S 67F15m	Gu	
	T Cru	12 20 09	-62 10	"	00 36 00	01 41 00	65m/fine	2:42W	1½"/clear	"	"	"	7.6	"	"	"	"	"	"	"	
	S TrA	15 59 15	-63 43.5	"	01 51 00	02 48 00	57m/fine	0:15W	"	"	"	"	7.4	"	"	"	"	"	"	"	
	W Sgr	18 03 41	-29 35.3	"	04 01 00	04 13 00	13m/strong	0.23E	"	"	"	"	5.4:	"	"	"	"	"	"	"	
	γ Sgr	18 20 09	-18 52.5	"	04 22 00	05 05 00	43m/strong	0.12W	"	"	"	"	7.0	"	"	"	"	"	"	"	
	U Sgr	18 30 38	-19 09	"	05 10 30	06 40 00	90m/fine	1:40W	"	"	"	"	5.0	"	"	"	"	"	"	"	
	FF Aql	18 57 19	+17 19.6	"	06 51 00	07 13 00	23m/fine	1:45W	"	"	"	"	6.1	"	"	"	"	"	"	"	
	S Sge	19 55 05	+16 34.5	"	07 23 30	07 55 00	33m/fine	1:27W	"	"	"	"	6.5	"	"	"	"	"	"	"	
1781	ℓ Car	07 44 41	-62 24.6	25-26	00 30 00	00 10 00	7m/fine	3:54W	2"/clear	2.20	50µ/1.8	67/4.48	4.9	cepheid F-G sg	spot sens	30m 14V	NeA 60s	IIa-C	M-S 67F15m	Gu	Id layed by clouds
	ER Car	11 08 56	-58 43.4	"	00 16 00	02 00 00	10m/fine	4:20W	/cirrus	"	"	"	8.0	"	"	"	"	"	"	"	closed interrupt ½hr house
	S Cru	12 53 05	-58 19.0	"	02 11 30	04 09 00	75m/fine	4:50W	/clouds	"	"	"	7.7	"	"	"	"	"	"	"	
	S TrA	15 59 15	-63 43.5	"	04 17 00	05 20 00	63m/fine	2:51W	"	"	"	"	7.5	"	"	"	"	"	"	"	
	AP Sgr	18 11 45	-23 05	"	05 33 00				"	"	"	"	7.7	"	"	"	"	"	"	"	terminated by clouds
1782	ℓ Car	09 44 41	-62 24.6	27-28	23 31 30	23 32 30	7m/fine	3:30W	1½"/clear	2.20	50µ/1.8	67/4.48	5.0	cepheid F-G sg	spot sens	30m 14V	NeA 60s	IIa-C	M-S 67F15m	Gu	
	U Car	10 56 56	-59 37.1	"	23 41 30	00 51 30	64m/weak	3:34W	"	"	"	"	7.6	"	"	"	"	"	"	"	
	S Mus	12 11 36	-70 02.1	"	00 58 30	01 51 30	53m/fine	3:30W	"	"	"	"	7.4	"	"	"	"	"	"	"	cirrus, thin, fog, fog, fog
	S Cru	12 53 05	-58 19.0	"	01 58 30	03 01 00	66m/fine	3:49W	"	"	"	"	7.5	"	"	"	"	"	"	"	
	S Nor	16 17 05	-57 51.4	"	03 11 00	04 17 00	66m/weak	1:35W	"	"	"	"	7.6	"	"	"	"	"	"	"	
	W Sgr	18 03 41	-29 35.3	"	04 23 00	04 34 00	11m/strong	0.12W	"	"	"	"	5.6	"	"	"	"	"	"	"	
	γ Sgr	18 20 07	-18 13.5	"	05 32 00	06 12 00	10m/strong	1:30W	"	"	"	"	6.5	"	"	"	"	"	"	"	
	η Aql	19 51 25	+00 54	"	06 32 30	06 37 30	7m/strong	0:15W	"	"	"	"	5.0	"	"	"	"	"	"	"	very windy 38-40 - closed
	S Sge	19 55 05	+16 34.5	"	06 51 00	07 26 00	41m/strong	1:03W	"	"	"	"	6.5	"	"	"	"	"	"	"	
1783				28/29						2.20	50µ/1.2	67/4.48			spot sens	30m 14V	NeA 60s	IIa-O	M-S 67F15m	Gu	closed due to wind 40-45

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 242

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1979 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CAL.D	EMUL	DEV	OBS	REMARKS
FOCUS (2 PLATES)	—	—	—	JULY 7-8 ↓	—	—	—	—	2"/CLEAR	2.82	50/1.2	60/448	—	—	NeA	~60s	—	IIaO	15m M-5	Crw Boyce	T=15° H=10%
HD 178343	22 Sgr	16h28m.7	-25°04'	JULY 8-9	1:06	1:13	7m/BACK	0h55mE	1"/clear	2.82	50/1.2	60/448	4.65	B2	NeA	120 ~60s	11	IIaO	15m M-5	Crw Boyce	T=16° H=10% W~10 TRAILED ~65
	"	"	"	"	1:14	1:21	7m/WORK	0h47mE	"	"	"	"	"	"	"	"	14	"	"	"	GUIDED 20 PASSES GUIDED ~63 TRAILED (8) DARK!
	K Oph	16h56m.5	+09°18'		1:25	1:33	8m/DARK	?	1½"/CLEAR				V= 3.2	K2III			16				
	FF Aql	18h57m.3	+17°20'		1:42	2:12	30m/	2h25mE	1"				6.1	FG CEMKED			18				GUIDED (20)
	η Aql	19h51m.4	0°57'		2:16	2:23	7m/	3h07mE	1"				5.0	FG CEMKED	NeA	120 60s	20				TRAILED (7)
	X Sgr	17h46m.3	-27°56'		2:28	2:40	12m/	0h45mE	1"				5.6	F-G CEMKED			22			FORGOT TO PULL SLIDE!	5X ND, FILTER
	MOON (FULL)				2:45		½ SEC														5X ND FILTER
	MOON				2:45		1 SEC														
LC 17547	RS Sco	16h51m.0	-45°04'	JULY 8-9	6:18	6:48	30m/V	4h43mW	1"/CLEAR	3.35	100/0.8	120/20	7.5	MIRA M5e-Se	NeA	10s	8				
	RR Sco	16h55m.0	-30°31'		6:57	7:45	45m/WORK	5h48mW	2"!				8.5	MIRA M5e-Se			10				
	λ Aqr	22h51m.4	-7°42'		8:00	8:03	10s/20s/30s V	0h25mE	(PESSIMAL CENTER)				3.7	M2-5IIIa			12,14,15				
	ξ Aqr	23h13m.2	-6°10'		8:08	8:11	15s/30s/60s V	0h38mE					4.2	M1-5III			17,18,19				
	30 Psc	0h00m.8	-6°09'		8:15	8:20	30s/60s/90s V	1h19mE					4.4	M3III			21,22,23				
	KPNO 5168	21h44m.9	-2°16'		8:27	9:05	[redacted] W						7.2	M7III	NeA	10s	26,27				W~24 CLOUDS!
							EXTENDED TO 35m														
LC 17855	HD 116.994	13 27.02	-51 10.5	MAY 9/10	01.20	01.46	20m/CLOUDY	2h47mW	4" CLOUDY	3.35	100/0.8	120/20	3.5	M5	NeA	10s	5,6,7,8				LIGHT CLOUDS SEEN ON GUIDE TV!
	"	"	"	"	01.47	02:27	40m/CLOUDY	3.22w	3-4" CLOUDY				3.5				4				
	119 Vir	14 48.2	+01 59.0		02:44	02.47	5m/CLOUDY		3-4" CLOUDY				5.74	M0.5			5				
	"	"	"	"	02.49	02:55	6m/CLOUDY	2.32w	CLOUDY								6				
																	3				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	1974 DATE U.T	U T EXP BEGIN	U T EXP END	TOTAL / CORR	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	~~CATG.~~ /25	EMUL.	DEV.	OBS.	REMARKS
1788	RS Sco	16h 54.m0	-45° 04′	JULY 22-23	02:00	02:12	2,3,5/5	0:36 W	1½/CLEAR	3.42	100/0.6	120/7.0	7.5	MIRA M4-Se	NeA	2⁵	-5,-3,-1	IIIaD	15m M-5	CW	T = 12° H = 16% W ~ NONE CIRRUS!
	T Cen	13h 40.m3	-33° 28′		02:35	02:48	1½m, 2½m, 4/4	4h 25m W					7.0	MIRA K8e-M3	NeA	2⁵	+1, +5, +5				
1789	R Cen	14h 15.m5	-59° 48′		03:30	04:38	2 60″/✓	5h 40m W					10.2	MIRA M4-Se			-5			T = 13° H = 15% W = 22	SCATTERED CLOUD THEN OVERCAST
	RR Sco	16h 55.m0	-30° 31′		04:55	05:40	45m/30	4h 03m W					9.5	MIRA M5e-Se	NeA	2⁵	-3				
1790	R Car	9h 32.m2	-62° 42′	JULY 27-28	00:40	00:57	2m, 2m/2m	2h 00m W	2″/CIRRUS	3.42	100/0.6	120/2.0	6.0	MIRA M4-Se	NeA	2⁵	-5, -3, -1	IIIaD	15m M-5	CW	T = 14°C H = K.O W = 25
	S Car	10h 09.m1	-61° 25′		01:05	01:22	2,4,6/4m	6h 49m W					~6.0	MIRA K8e-M4e	NeA	2⁵	+5, +5				
1791	T Cen	13h 40.m3	-33° 28′		02:34	02:39	5m/SLIGHT	4h 36m W					7.0	MIRA K8e-M3			-5				
	R Cen	14h 15.m5	-59° 48′		02:57	04:27	90m/WEAK	5h 50m W					10.2	MIRA M4-Se	NeA	2⁵	-3			T = 14° H = 13% W = 28	THICK CIRRUS! CUT SHORT DUE TO CLOUD! OVERCAST AT 2!
	RR Sco	16h 55.m0	-30° 31′		04:47	05:37	50m/100 WEAK	4h 19m W					9.5	MIRA M5e-Se	NeA	2⁵	-1				
1792	R Cen	14h 15.m5	-59° 48′	JULY 28-29	02:40	04:20	100m/✓	5h 45m W	1″/CLEAR	3.42	100/0.6	120/7.0	10.5	MIRA M4-Se	NeA	2⁵	-5	IIIaD	15m M-5	CW	T = 13° H = 15% W = 20 CLOUD UNTIL 9 PM
	RS Sco	16h 54.m0	-45° 04′		04:40	04:56	6m/9m/6m	4h 43m W					7.5	MIRA M4-Se	NeA	2⁵	-3, -1				
	RR Sco	16h 55.m0	-30° 31′		05:05	05:37	30m/30 SLIGHT	4h 23m W					9.5	MIRA M5e-Se	NeA	2⁵	+1				
	KZP 546-8	2h 45.m2	-2° 16′		06:02	06:18	2½/8m	0h 15m W					7.2	M III	NeA	2⁵	+3, +4, +5			T = 13° H = 41% W = 22	
1793	T Gru	22h 34.m4	-37° 41′		07:28	10:00	150/✓	3h 49m W					11.5	Moe	NeA	2⁵	-5				

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 244

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC. 1980	1979 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1794	RX Boo	14h 23m.2	+25° 49′	July 29-30	00 25	00 55	4m 8m 10m CIRRUS	2h 16m W	1"/GOOD	3.42	100/0.6	120/7.0	7.0	MS III	NeA	2s	-2 -3	IIaD	M-S 15m	CW	T=35° H=50 W=32
	RR Sco	16h 55m.0	−30° 51′		01:10	01:50	35m/W	0h 46m W	2"/GOOD FOCUS				9.5	M1RA M5-Se	NeA	2s	-1				
	ϵ^2 Oph	16h 26m.4	−7° 34′		02:25	02:26	1m/V	1h 45m W					5.2	M2 5 III	NeA	2s	+1				
	δ Oph	16h 12m.8	−3° 38′		02:35	02:36	1 SET THRU	N 2h 08m W					2.75	M0.5 III			+2				
	K^2 Oph	16h 58m.5	+14° 10′		02:46	02:47	45s/V	1h 30m W					4.88	M5 III			+3				
	21 Her	17h 13m.6	+14° 27′		02:53	02:55	20 SET THRU	1h 16m W					~3.5	M5 II-III			+4				
	106 Her	18h 46m.1	+21° 55′		03:02	03:03	45s/	0h 29m W					4.98	M2 III &	NeA	2s	+5				
1795	H1-36	17h 48m.4	−37° 03′		03 30	04 20	45m/	2h 13m W		3.42	200/0.6	120/7.0	—	—	NeA	2s	-5				T=15° H=30 W=30
	FOCUS			M-22			60s		10 2AP 290 2.90		8/1.2	64/4.48	2.80 V		NeA	60s		IIaD	M-S 15m	AC	15°/17°
1796	BS 8781	23h 32m.5	−7° 11	19:20	05:54				2"	2.80	50/1.2	67/4.48			NeA	60s	5	IIaD	M-S 15m	AC	13°/17°
	BS 8931	23h 36m.5	−7° 11		06:02	06:52	16.32 / 12.24	2h 34m W	1½"				6.50 V	dG0			7,9				G tracks 16 5" travel 12
	BS 8cp	2h 25m.8	−40° 22′		06:54	07:34	/	24m W	1"				6.20	G0			12,14				
					07:40										NeA	60s	17				
	Focus 1			23/23	22:00		10s		11mm 3.25-3.45		100/0.8	120/7.0	(3.5)		NeA	10s		IIaO			
	" 2			"	00 00				11mm 3.35-3.55				(3.44)		NeA	10s		"			
1797				25/24	04:15					3.44	100/0.8	120/7.0			NeA	10s	60	IIaO	M-S 15m	Cy AC	16°/30° 4
	HD 214615	22h 16m.1	+5° 10′		04:55	07:39	32, 120, 160 / 90	45m W	CIRRUS 3-4"				4.61	G4 III							
	~~HD 214614~~	~~22h 16m.2~~	~~−5° 35′~~				120 = 2m, 160						5.62	F8 III							
	HD 3443	0h 36m.2	−24° 32′		05:13	05:31	120, 160	45m W	2-5 cannot				6.24	G5 II							
	HD 10700	1h 43.3	−16° 05′		06:01	06:10		10° W	3				4.22	G8 V							
1798	HD 166891	17h 42.6	51° 49	24/25	00:42		13m 30s / 87½	2h 45m W	2" SOME CLOUD	2.66	50μ/1.2	67/4.48	5.82	G5 II	NeA	60s	60s 20"	Dahill IIaO	M-S 15m OK	Cy	11°/25° 2" HH
	HD 170 006 AB	18h 31.3	−12 59′		1:18	1 59	+1 / 80	5m E	15m / CLOUDY				8.33	G3 II			20m IIIV				
	HD 180567	26h 03.4	−67° 22′		2:09	2 30	21 / +10	2h 00.1E	11 / CLOUDY				6.76	G2 II				3m 40s Formosa			
	HD 211998	22h 22.6	−72° 20		2:53	3:02	7 / +10	2h 26 E	2" / CLOUDY				5.83	F8 I							
	HD 216615	23h 1.1	+3° 10		3m 12	3 31	1, 2, 4 / 4	0h 15 E	4½ / -				4.61	K7 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1979 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1799	HD 26	0h 04.3	+8°45'	24/25	4h 58	7h 00	122m / 150	2h 28' W	2-3 / clear haze	2.86	50μ / 0.8	67 / 4.46	9.30	G4 IIp	Neon	30s	12m @ 14V	Baked IIa-O	m=5, 15h, 67°	Cg	Line on w. edge of g
	HD 20630	3h 18.3	+5°17		7h 12	7h 18	6m / ✓	0h 28' E	2 / clear		/ 1.2		5.52	G5 V			10m @ 14V	70° w 05° Fan of lines			25-30
	HD 20766	3h 17.1	-62° 40'		7h 33	7h 43	10m / 15	0h 01' E	3-2 clear				6.17	G2 V							
	HD 20807	3h 17.5	-62° 35'		7h 49	7h 55	6m / 10	0h 09 W	2 clear				5.58	G1 V							
	HD 22674	3h 18.7	-43° 09'		8h 02	8h 08, 13	6m, 6m / 6✓	0h 15 W	2 "				4.97	G5 II							
	HD 22049	3h 32.1	-9° 31'		8h 23	8h 38	5m, 8m, 22m / 3✓	0h 31' W	2 "				4.61	K2 V							
1800	HD 156411	17h 18.4	-48° 31'	24/25 Oct	0h 07	0h 27	20m / 25	2h 43' W	2 clear	"	/ 1.2	tilt set wrong (wedge)	7.1	G1 IIIw	Neon	30s	20m @ 14V	Baked IIa-O		Cg	T = 10° H = 30% W = 20
	160617	17h 41.4	-40° 18'		0h 35	2h 35	120 / 150	4h 30 W	1.5 / clear		/ 0.8		8.8	F1 V				40m w 05°			Sky at w. edge of most spectra
	221074	23h 28.1	-51° 07'		2h 53	4h 54	121 / 150	1h 02 W	1.5 / clear		/ 0.8	-	8.8	F7/G2 V							
1801	17072	2h 40.3	-61° 19'		6h 05	7h 07	62 / 150	0h 09 W	3 / clear	"	/ 1.2	67 / 4.48	7.1	G2 w F5	"	"	"	"	"	"	
	273055	4h 14.2	-65° 01		7h 31	9h 21	110 / 250	0h 45 W	3 / "		/ 0.8		8.2	F6 w F3							
1802	HD 166971	17h 42.6	-51° 49	1st Oct	0h 38	0h 51	13 / ✓	2h 45 W	3" / clear	2.89	50μ / 1.2	67 / 4.44	5.82	G5 V	Neon	30s	2m @ 14V	"	"	"	T = 6°, H = 30%, W = 20
	182572	19h 24.6	+11° 53		0h 52	1h 13	15 / ✓	1h 47 W	2½ / clear		/		5.95	G8 IV							
	189567	20h 03.4	-67° 22		1h 30	1h 46	16 / ✓	1h 40 W	2 / clear		/		6.70	G2 V							
	211998	22h 22.6	-72° 20		2h 03	2h 21	6m, 11m / 8 ✓	0h 04 E	2" / clear				5.93	G0 V							Ring 20" ?
	214714	22h 38.6	+31° 29'		2h 42	3h 08	26 / ✓	0h 27 W	" / "		/		~6.7	G?							
	221170	23h 28.5	+30° 19		3h 22	5h 22	120 / ✓	1h 55 W	" / "		/		5.76	G2 IV							Moon G1 away
1803	10607	1h 40.6	-67° 45		6h 22	8h 02	100 / ✓	2h 20 W	2-3 / "		/		8.7	G2 w F5	"	"	"	"	"	"	No moon now
	273055	4h 14.2	-65° 01		8h 07	9h 10	63 / ✓	0h 55 W	3-2 / "		/		8.2	F6 w F3							2nd set.
1804	182572	19h 24.0	+11° 53'	2nd Oct	0h 12	0h 25	13m / ✓	1h 02 W	2.5 / clear	-	-	"	5.95	G8 III	"	"	"	"	"	Cg	T = 9°, H = 2%, W = 25
	191046	20h 05.8	+36° 10'		0h 46	1h 34	108 / ✓	2h 30 W	" / "		0.8		8.18	G9 IV							Moon 70° away
	3576	0h 37.5	+25° 12'		2h 42	2h 53	11 / ✓	1h 42' E	" / "		/ 1.2		5.24	G5 III+							
	7826	1h 35.6	+41° 18'		3h 02	3h 16	14 / ✓	2h 17' E	" / "				4.62	F8 V							
	10700	1h 43 3	-16° 03'		3h 35'	3h 45'	1½, 3.5m / 3✓	1h 57 E	" / "				4.22	G8 IIp							
	3443	0h 36.2	-24° 52'		3h 51'	4h 01	10 / 13	0h 33 E	" / "				6.27	G5 V							
1805	7031	1h 08.0	-71° 56'		4h 27	6h 40	133 / ✓	1h 34 W	2.5-3" / clear				9.3	G5 w F6							
	52758	6h 59.3	-49° 28'		6h 58	9h 15	120 / ✓	1h 42 E	2 / clear				9.6	G2 V w F3/5							15m Last of RA trouble
1806	191046	20h 05.8	+36° 10	3rd Oct	0h 21	2h 01	100 / ✓	2h 02 W	2" / clear	2.82	0.8	"	8.18	G9 IV	"	"	as 1807	"	"	Cg	T = 6°, H = 20%, W = 21
	208776	21h 57.6	+3° 46'		2h 08	2h 33	25 / 30	0h 41 W	1.5 / clear		1.2		7.55	G0 V							Moon 30° away
	208906	21h 57.9	+29° 43		2 44	3 29	45 / ✓	1h 42 W	/				7.46	F8 V							

NUMBER	OBJECT	RA	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1806	217014	22h56.4	+26° 37'	3/4 Oct	3h36	3h48	12 / 1	1h04W	2	-2.82	5m / 1.2	67 / 447	6.20	G4 V	Ne H	30s		IIIaJ			
	35-76	0h37.5	+29° 12'		3h58	4h05	7 / Cloudy !	0h12W	"				5.24	G5 III+				Pan1 (2nd)			
	9826	1h35.6	+41° 18'		4h21	4h27	6 / Cloudy !	1h06E	"				4.62	F8 V							
1807	17072	2h40.3	-61° 19'		5h00	5h30	30 / 40	1h04E	2 / 4 arcsec				7.1	G2W F5			3m 14s				
	18003	2h50.8	-55° 09'		5h39	7h27	108 / 140	0h42W	"				8.8	G8 III W							
	26167	4h1.2	-75° 46'		7h55'	8h17	102 / 150	1h21W	2		6.8		9.1	G8 W Ba							
1808	7618	19h57.6	-26° 11'	4/5 Oct 71	3h07	3h16	9 / ✓	3h29W	2.5 / 3.0	2.90	5m / 1.2		4.83 V	G6 III B-0.2	"	"	"	"			
	7845	20 31.1	-09° 55'		3h22	3h36	14 / ✓	3h16W	"				5.65 V	G-25 III							
	8115	21h11.7	+36° 08'		3h44	3h58	4 6 / 5 ✓	2h46W	"				4.20 B	G-8 III CN 1							2.1985
	8631	22h46.9	+14° 25'		4h06	4h18	12 / 20	1h46W	"				5.72 V	G3 V							
	8684	22h48.8	+24° 8'		4h25	4h35	2 4 5 / Cloudy 5	1h53W	2				4.41 B	G8 III+							2.1985
	8729	22h56.4	+20° 41'		4h40	4h50	9 12 / 12	2h02W	1.5				5.44 V	G25 III a							
	402	1h22.8	-08° 19'		5h04	5h10	2 3 / 3 ✓	0h04E	2				4.67 B	K0 III b							
1809	483	1h40.3	+42° 30'		5h18	5h32	14 / ✓	0h02W	"				4.95 V	G1.5 V							
1809	544	1h51.7	+24° 28'		6h10	6h18	13 3 / 3 ✓	0h36W	"				3.92 B	F6 III							
	339	1h68.5	+19° 31'		6h25	6h35	11 / 11	1h36W	1.5				6.2	A0 III							
	856	2h57.8	+16° 23'		6h44	6h57	13 / ✓	0h15W	"				6.3	F5 III							
	641	2h11.7	+08° 44'		7h07	7h11	3 4 / 4	1h10W	"				5.35 B	G8 II CN-2							
	660	2h15.7	+34° 05'		7h20	7h29	8 / ✓	1h22W	2				4.86 V	G-6 V							
	1084	3h31.9	-01° 34'		7h40	7h45	1 2 / 2 ✓	1h23W	1.2				3.72 B	K2 III							
	G1 192.1	4h59.1	+14 19'		8h02	8h30	28 / 32	0h18E	2				6.7	G2 II-III							
HR	1724	5h22.7	-07° 51		8h37	8h47	3 5 / 4 ✓	0h26E	2.5 / 4 arcsec				4.14	G8 III N-0.5							
	1787	5h33.3	-00° 54		8h55	9h05	10 / ✓	0h07E	"				5.06	G1 III Fe-1							
1810	6060	16h14.5	-08° 18	7/8 Oct 1971	8h21	8h42	21 / ✓	4h41W	2.5 / 4 arcsec					G2 Ia			3m 14s				
	6577	17h37.9	+13° 21		8h47	1h21	32 / ✓	3h52W	2				6.2	F6 III							
	7063	18h45.9	-04° 42		1h27	1h38	6 / ✓	3h01W	2				2.3	G4 II-III							
	7164	18h58.0	-18° 36'		1h39	2h02	23 / 28	3h17W	2.5 / 4 arcsec				6.3	B-7 II							
	7479	19h39.0	+17° 58'		2h08	2h15	7 / ✓	2h50W	2.5 / 4 arcsec				4.27	B1 I							
	7488	19h39.9	+17 26'		2h20	2h31	11 3 / ✓	2h05W	3 / 4 arcsec				4.71	B9 II-III							
	7602	19h54.1	+08° 20'		2h36	2h45	8 3 5 / ✓	3h06W	2.5 / 4 arcsec				4.57	G2 III							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1811	HR 8905	23h24.4	+23° 17′	6/6 Oct	3h16	3h22	5½ / √	0h11 W	2+ / clear	2·90	52μ / 1.2	67 / 447	5.1	F6 II	Ne A	30″		IIa-O			
	9107	0h03.7	+34° 32′	Contd	3h27′	3h57	30 / √	0h06 W	2 / ..				6.74	G2 V			as 1040				>30° from Moon.
	98	0h23.9	−77° 22′		4h04	4h15	√	0h03 W	2 / ..				3.41	G2 II							
	340	1h09.2	+41° 58′		4h23	4h56	33 / √	0h01 W	2.5 / ..				6.27	F5 V							
1812	1412	4h28.2	+15° 49′		5h52	5h52	100 / √	2h23 E	/ ..				3.54	A7 III	—	..	as 1040	.	..		
	1351	4h18.5	+13° 58′		5h52	6h09	11m / √	1h57 E	/ ..				5.87	F6 IV							
	1279	4h06.3	+15° 06′		6h15	6h32	16 / √	1h21 E	2+ / ..				6.41	F3 I							
	HD 27524	4h20.0	+21.00		6h37	7h19	70 / √	0h48 E	..				7.23	F5 I							
	HR 1543	4h48.4	+06° 54′		7h27	7h32	30s, 120s / √	1h03 E	2½ / ..				3.65	F6 I							
	HD 27383	4h18.6	+16° 29′		7h39	8h24	75m / √55	0h19 W	..				7.41	F1 V							
	HR 1865	5h31.6	−17 51		8h35	8h35	50, 90, 50 / √	0h44 E	..				3.21	F0 Ia							
	2107	5h57.9	−09° 22′		8h40	8h55	15m / 20 √	0h49 E	..				6.6	F2 IV							
1813	1457	4h34.5	+16° 27′		9h08	9h08	25, 40, 60 / 95 √	0h46 W	..				2.31	K5 III							
	6623	17h45.5	+27° 45′	4 Oct	0h04	0h08	4m / 6	2h40 W	3″ / clear	..	..	..	3.41	G5 II	..	..	3″ 1041	..	..		1 = H & J ... Sept
	7102	19h56.3	+32° 52		0h18	0h35	17 / √	1h52 W	2½ / ..				5.23	F4 5 V							
	1516	11h28.4	−01° 03		0h42	0h52	14 / √	3h45 W	2 /				5.31	G5 III + K1							
	6603	17h42.3	+04° 35′		1h00	1h02	120s / √	3h37 W	2½ / ..				2.77	K2 III							
	6617	17h46.2	−22° 28′		1h10	1h14	14 / 25	4h04 W	K2 /				6.2	G3 III-IV							
	8085	21h05.8	+38° 37′		1h41	2h12	31 / √	1h25 W	2-3″ / ..				6.31	K5 II							
	8313	21h43.3	+17° 14′		2h19	2h25	60 / √	0h57 W	2 / ..				5.54	G5 Ia							
	8232	21h30.3	−03° 41		2h35	2h37	60, 120 / √	1h24 W	2½ / ..				3.73	G0 Ia							
	8414	22h04.5	−00° 26′		2h54	2h55	75s, 150 / 120 √	1h10 W	.. / ..				3.91	G2 Ia							
1814	8631	22h39.8	+14° 26′		3h13	3h33	20 / √	1h11 W	2 / ..				5.72:	G3 V							
	72	0h17.6	−8° 09		4h22	4h39	15 / √	0h37 W	2½ / ..				7.18	G0			as 1673				N ...
	448	1h32.7	−7° 07		4h45	4h55	10 / √	0h20 E	..				6.4	A3 2							... from ...
	706	2h23.7	−4° 31		5h04	5h15	11 / √	0h57 E	1.5 / ..				6.8	F0							
	1089	3h35.8	+6° 21		5h23	5h43	20 / √	0h33 E	2 / ..				7.0	G0							
	1322	4h14.6	+6° 09		5h53	6h24	25 / √	0h31 E	2 / ..				7.0	F0 II							
	1321	4h14.4	+6° 09		6h26	7h20	54 / √	0h36 E	2½-3 / ..				7.2	G5 II							
	1536	4h47.6	−05° 41		7h25	7h38	13 / √	0h52 E	2 / ..				6.4	dG0							

NUMBER	OBJECT	R.A.	DEC.	1929 DATE UT	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1814 cont'd	1274	4h 07.1	-64° 17'	6/7 cont'd	7h 47	8h 14	27m /	C h 24 W	2½" clear	2.90	5m / 1.2	61 / 447	7.01	G0	NaA	30"		IIaO Baked	Ryj 6.5m	Cj	
	1662	5h 06.6	+7° 27		8h 18	8h 46	22m /	C h C8 E	"				6.8	dG2				30" Hack Fringing			W=30
	2667	7h 03.4	-43° 35'		8h 41	8h 59	15m /	1h 46 E	"				6.4	G8 II							
1815 HD	156411	17h 18.4	-42° 31'	7/8m Oct	6h 06	6h 25	19m /	3h 28 W	1½" clear	-	-	-	7.1	G F0 V	"	"	23m 5.14m	"	"	Cj	T=15s, H=10⅞, W=20
	187579	19h 52.8	-41° 55'		6h 52'	7h 58	140m /	3h 30 W	2" "		5.6		9.8	G0 IV W F5							
	221054	23h 22.1	-51° 07		5h 03	4h 33	70m /	6h 27 W	1½" "		1.2		8.8	F7/G2 V							D = 10 mL.
1816	219617	23h 16.2	-13° 55'		4h 49	6h 29	100m /	3h 36 W	2" "				8.63	F8 IV	"	"	23 (815	"	"		cirrus but 30m. 45° from moon.
	36052	4h 46.7	+6° 35'		6h 58	7h 02	70-100m /	1h 25 E	2" cirrus				3.63	F6 II							
	32923	5h 06.2	+10° 36'		7h 09	7h 13	9 /	6h 27 E	"				5.55	G4 I							
	33256	5h 07.8	-04° 23'		7h 24	7h 33	9 /	1h 18 E	"				5.45	F5 II							
	37140	5h 35.8	+09° 18'		7h 42	7h 47	5m /	0h 27 E	"				5.64	G6 II-III							γ² Ori
	39056	6h 01.8	-09° 28'		7h 56	8h 01	5m 7	0h 45	2" clear				5.35	F5 II							a part - no clouds near
	61702	7h 38.4	-51° 02'		6h 09	6h 22	69m 140	1h 54 E	1½" streaks rotten				6.2	F½ II F1							Interrupted 5m by cloud. Could w thin light.
1817	213004	22h 29.1	-42° 57'	11th/12th Oct	2h 24	5h 26	45m 7 /	2h 22 W	1½" cirrus	-	-	-	4.91	-	-	-	23 (819	-	-		T=17s, H=12½, W=16 mL
	1461	2h 17.6	08° 09'		4h 40	5h 51	11 (wind)	2h 08 W	2" "				7.13	G5 II-I							
1818	188985	19h 58.5	-44° 02'	10th/11th Oct	6h 10	2h 11	121 /	2h 45 W	2" clear cirrus	-	6.6	-	7.6	F5 V-IV W?	-	-					T=15s, H=12½, W=16 mL Zenith w moon. Intermittent clouds + cirrus
	217808	23h 04.8	-44° 42		2h 18	4h 46	148m	2h 16 W	1½" "				7.9	F2 V (IV)?							
1819	61461	0h 17.6	-08° 07		5h 15	5h 46	25 /	1h 57 W	1½" cirrus		1.2		7.13	G-F II-I			23 (811				
	10307	1h 40.5	+42° 31		5h 52	6h 39	19 25	1h 02 W	2" "				5.8	G0 V							
	13974	2h 15.6	+34° 08'		6h 16	6h 26	10 /	0h 43 W	1½" "				5.48	G0 I							
	16417	2h 36.1	-34° 39'		6h 42	6h 53	16m 20	1h 55 W	"				6.44	G5 II							Plumply F-f clouds - cirrus, alto-cu, cu. Stopped by cu clouds
	22879	3h 31.3	-05° 16'		7h 11	7h 34	23m 30	0h 00	"				7.02	F5 V							
1820	191046	20h 05.8	+30° 16'	12th/13th Oct	6h 12	2h 07	115m /	2h 43 W	2" clear	-	6.8	-	8.19	G4 II			2m 4.42				H=12°, H=45½, W=22 mL
	208906	21h 57.9	+23° 43		2h 15	3h 05	50 /	1h 45 W	1½-2" "		1.2		7.46	F8 V							W=12
	208698	21h 24.4	-65° 28		3h 14'	3h 23	24m 5 /	2h 37 W	2" "				4.70	F6 I							
	217014	22h 36.4	+20° 39		5h 30	5h 41	16m /	1h 26 W	1½" "				4.20	G4 I							
	26	0h 4.3	+08° 40		5h 41	6h 39	110m /	2h 18 W	" "		5.8		9.30	G4 III							
	3546	0h 37.5	+24° 12'		5h 44	5h 52	8m /	1h 57 W	2" "		1.2		5.24	K5 III							
	22879	3h 39.3	-05° 16		5h 59	6h 16	18 /	0h 46 E	1½" "				7.12	F8 I							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1979 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1821	17072	$2^h 40.3$	$-69° 19'$	12/13th	$6^h 40$	$7^h 05$	25 / ✓	$1^h 06$ W	2" / clear	2.90	50μ / 1.2	67 / 4.49	7.1	G2 W F5	NeA	30s	as 1820	IIaO	m=5, 67°, 15th	Cy	T=11°, ω=.4
	18003	$2^h 50.8$	$-55° 09'$	13th (Cont'd)	$7^h 11$	$8^h 46$	95 / 110 ✓	$2^h 38$ W	1.5-2" / "				8.8	G8 II W				Baked 90m 160°C Formagias			H=76%)
	HR 2290 HD 44594	$6^h 19.6$	$-48° 43$		$8^h 50$	$9^h 09$	19 / ✓	$0^h 30$ E	1.5 / "				7.26	G0							
1822	HR 6623	$17^h 45.5$	$+27° 45$	13/14th	$0^h 18$	$0^h 26$	7½ / ✓	$3^h 25$ W	3" / clear	"	"	"	3.41 V	G5 II	"	"	35m @ 14V	"	"	"	T=12°, H=32%, ω=6 mph
	7569	$19^h 51.2$	$+11° 35'$		$0^h 33$	$0^h 47$	14 / 20	$1^h 41$ W	1.5+ / "				6.7	G2 II							autoguider
	6939	$18^h 31.7$	$-58° 44$		$0^h 57$	$1^h 20$	23 / ✓	$3^h 34$ W	"				7.11	G0							
	7296	$19^h 15.3$	$-33° 34$		$1^h 26$	$1^h 38$	12 / 25	$3^h 08$ W	"				~6.6	Fp							
	8041	$20^h 59.5$	$-04° 48$		$1^h 45$	$2^h 00$	15 / ✓	$1^h 45$ W	"				6.9	G1 V							
	8531 A	$22^h 23.6$	$-57° 54'$		$2^h 07$	$2^h 15$	8 / ✓	$0^h 37$ W	"				5.97	G3 III							
	8668	$22^h 44.9$	$-49° 05'$		$2^h 22$	$2^h 46$	24 / ✓	$0^h 46$ W	"				7.4	G0							
	9107	$0^h 03.7$	$+34° 32'$		$2^h 56$	$3^h 35$	39 / ✓	$0^h 16$ W	2+ / "				6.74	G2 V							
	339	$1^h 08.5$	$+19° 31$		$3^h 42$	$3^h 56$	14 / ✓	$0^h 29$ E	"				~6.2	G0 III							
	510	$1^h 44.1$	$+09° 02'$		$4^h 03$	$4^h 15$	4, 7½ / 7 ✓	$0^h 44$ W	"				5.22	G8 III							
1823	HD 10307	$1^h 40.5$	$+42° 31$		$4^h 34'$	$4^h 59$	25 / ✓	$0^h 04$ W	3'-5 / "	"	"	"	5.56	G2 V	"	"	as 1822	"	"	"	
	17233	$2^h 43.3$	$-54° 52$		$5^h 09$	$7^h 29$	140 / 180	$1^h 30$ W	2½-3 / "		0.6		9.6	G8 + G0 III/V							T=13°, ω=6 mph, comfortable
	27524	$4^h 20.0$	$+20° 59$		$7^h 36$	$8^h 06$	30 / ✓	$0^h 31$ W	1.5 / "		1.2		7.23	F5 V							
	HR 1016	$3^h 20.3$	$-23° 43$		$8^h 12$	$8^h 20$	8 / 10 ✓	$1^h 45$ W	"				6.40	G7 IIb							
	2668	$7^h 03.4$	$-43° 35'$		$8^h 26$	$8^h 50$	24 / 28 ✓	$1^h 28$ E	"				6.4 V	G0							
1824	7296	$19^h 15.3$	$-33° 34'$	14/15th	$0^h 15$	$0^h 49$	34 / ✓	$2^h 23$ W	2" / clear	"	"	"	~6.1 V	Fp	"	"	35m @ 14V	"	"	"	T=13°, H=32%, ω=8 mph
	HD 200654	$21^h 05.2$	$-50° 03$	Oct	$0^h 56$	$3^h 08$	132 / ✓	$2^h 52$ W	2½" / "		0.6		9.3	(G) W							
	Vesta	$3^h 02.2$	$+06° 10$		$3^h 29$	$3^h 59$	30 / 40	$2^h 15$ E	2.2 / "		1.2		7.2	G2 V - Sun							
1825	26169	$4^h 01.8$	$-75° 39$		$4^h 40$	$6^h 44$	124 / !	$0^h 30$ E	2" / "		0.8		9.1	G8 W Pec	"	"	as 1824	"	"	"	NE of pec. w=0 mph!
	34328	$5^h 12.6$	$-59° 40'$		$6^h 48$	$9^h 00$	132 / ✓	$0^h 36$ W	2'-1.5 / "		"		9.6	G1 WA8 V							
	Moon	$9^h 01.7$	$+4° 33$		$9^h 10$	$9^h 11$	5, 2, 4, 8 / 6 ✓	$3^h 00$ E	"		1.2		?	G2 V - Sun							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 250

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980.0	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
Focus 1	–	–	–	1979 30/31 Oct MDT	00:15	00:25	2s each	3.24, 3.26, 3.28, 3.30	3.32	3.34	3.36	3.38, 3.40, 3.42, 3.44 (1 sec)	IIa-D	15m-07°	LEVATO BOYCE	T = 12° RH = 31%					
Focus 2	–	–	–	"	01:00	01:15	2s "	3.38, 3.40, 3.42, 3.44	3.46	3.48	3.50	3.52, 3.54, –	3.56								T = 11° RH = 31%
Focus 3	–	–	–	"	01:30	02:00	2s "	3.32, 3.40, 3.42, 3.44	3.46	3.48	3.50	3.52, 3.54, –	3.56								T = 10°5 RH = 31%
18	ALLEN 145A	02 11 32	-71 02 36	"	05:59	06:04	2m/3m	1.40 W	2" clear	3.40	100	2.0	8.0	–	N2A	25	–	"	"	LEVATO	Numbers from
b	ADS 2016 A	02 37 59	-28 15 25	"	06:26	06:41	10m/15m	2.00 W	"	"	"	"	~9.5	–	–	–	–	"	"	"	Allen's Paris
c	" B	"	"	"	06:44	07:32	30m/45m	2.46 W	"	"	"	"	~10.8	–	–	–	–	"	"	"	"Catalogue of
d	ALLEN 137A	05 28 08	-35 21 57	"	07:43	07:50	2m/2m	0.15 W	"	"	"	"	7.9	–	–	–	–	"	"	"	Multiple Systems"
e	" B	"	"	"	07:54	07:57	3m/5m	0.22 W	"	"	"	"	~8.3	–	–	–	–	"	"	"	
f	Comparison	–	–	"	–	–	–	–	–	"	"	"	–	–	NoA	3°	–	"	"	"	
18	ADS 4254A	05 38 25	-17 51 29	"	08 41	08 43	2m over	1.00 W	"	"	"	"	6.2	–	–	–	–	"	"	"	Both stars on slit
b	ADS 4260A	05 38 55	-20 26 33	"	08:54	08:55	1m/1m	1.10 W	"	"	"	"	7.0	–	–	–	–	"	"	"	
c	ADS 4260B	"	"	"	08:58	09:00	2m/3m	1.15 W	"	"	"	"	8.0	–	–	–	–	"	"	"	
d	Comparison	–	–	"	–	–	–	–	–	–	–	–	–	–	NoA	3°	–	"	"	"	
18	ADS 16392A	22 56 02	-03 21 57	31/1 Oct/Nov	01:11	01:12	1m	0.10 W	1.5" clear	3.37	"	"	6.6	–	–	–	–	"	"	"	T = 13° RH = 28%
b	ALLEN 937A	22 58 46	-56 46 52	"	01:22	01:35	12m	0.30 W	"	"	"	"	9.7	–	–	–	–	"	"	"	
c	ALLEN 948A	23 22 10	-63 58 42	"	01:52	02:04	10m	0.43 W	"	"	"	"	9.0	–	–	–	–	"	"	"	
d	ALLEN 11A	00 39 55	-52 12 44	"	02:20.7	03:57	23m/30m	0.10 W	"	"	"	"	~10.6	–	–	–	–	"	"	"	
e	" 614	02 33 14	-75 59 04	"	03:24	03:25	45s	1.50 E	"	"	"	"	6.8	–	–	–	–	"	"	"	
f	Comparison	–	–	"	–	–	–	–	–	"	"	"	–	–	NoA	3°	–	"	"	"	
18	ALLEN 64A	02 34 36	-80 50 10	"	03:58	04:04	6m	0.40 E	"	"	"	"	~9.0	–	–	–	–	"	"	"	
b	" 64B	"	"	"	04:24	05:57	90m	1.20 W	"	"	"	"	~11.5	–	–	–	–	"	"	"	
c	ADS 2433A	03 59 57	-10 30 40	"	06:05	06:13	8m	0.10 W	"	"	"	"	~9.3	–	–	–	–	"	"	"	
d	" B	"	"	"	06:18	06:24	15m	0.30 W	"	"	"	"	~10	–	–	–	–	"	"	"	
e	" C	"	"	"	06:40	07:12	30m	1.10 W	"	"	"	"	~10.8	–	–	–	–	"	"	"	
f	Comparison	"	"	"	–	–	–	–	–	"	"	"	–	–	NoA	3°	#	"	"	"	
18	ALLEN 157C	05 25 08	-35 21 57	"	07:57	08:24	27m	0.55 W	"	"	"	"	~10.6	–	–	–	–	"	"	"	guided in DEC
b	ADS 4126 C	05 34 19	-05 24 01	"	08 39	08:40	1m	0.59 W	"	"	"	"	5.4		–	–	–	"	"	"	"
c	D	"	"	"	08:44	08:45	40s	1.05 W	"	"	"	"	6.8		–	–	–	"	"	"	"
d	A	"	"	"	08:49	08:50	40s	1.10 W	"	"	"	"	6.8		–	–	–	"	"	"	"
e	B	"	"	"	08:52	08:54	2m	1.15 W	"	"	"	"	7.9	–	–	–	–	"	"	"	"

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 251

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T 1979	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	I.T CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1830 f	Comparison	–	–	OCT/NOV 31/1	–	–	–	–	–	3.42	100/0.8	120/70	–	–	NeAr	3s	–	IIa-D	M-> 15M-OFF	LEVATO	
1831a	ALLEN 924 A	22 43 52	-79 58 22	NOV 1/2	01:39	01:58	12m 19m	01:15W	2" clear	"	"	"	~9.6	—	—	—	—	"	"	"	
b	" " A	00 39 57	-52 12 44	"	02:11	02:27	15m 16m	0:10E	"	"	"	"	~10	—	—	—	—	"	"	"	
c	" " B	"	"	"	02:32	03:06	30m 34	0:25W	"	"	"	"	~10.8	—	—	—	—	"	"	"	
d	" 64 A	02 34 36	-80 50 10	"	03:22	03:36	6m 14m	1:00E	"	"	"	"	~9	—	—	—	—	"	"	"	
e	ADS 2681 A	03 39 24	+05 03 24	"	03:49	03:50	1m –	1.45W	"	"	"	"	~7	—	—	—	—	"	"	"	
f	Comparison	—	—	"	–	–	–	–	—	"	"	"	–	–	NeA	3s	–	"	"	"	
1832a	ADS 2681 B	03 39 24	+05 03 21	"	04:10	04:26	10m –	1.15E	"	"	" / 0.6	"	~9.8	—	—	—	—	"	"	"	Some contam spectra from C – DOS 0
b	ADS 2681 C	"	"	"	04 32	04 53	20m 21	0.45E	"	"	"	"	~10.5	—	—	—	—	"	"	"	POS (-2)
c	ADS 3579 A	04 17 49	+14 36 03	"	05 11	05:12	20s 40s	1 45E	"	"	" / 0.8	"	~6.0	—	—	—	—	"	"	"	POS (-4)
d	" B	"	"	"	05:20	05 23	2m –	1 42E	"	"	"	"	~8.0	—	—	—	—	"	"	"	POS (+2)
e	" 4186 B	05 34 19	-05 24 01	"	05:26	05:27	1m –	–	"	"	"	"	~7.9	—	—	—	—	"	"	"	POS (+4)
1833a	" 4241 E	05 37 42	-02 36 24	"	06 21	06 22	1m 50s	1 1E	"	"	" / 0.8	"	~8.5	—	—	—	—				
b	" C	"	"	"	06:37	06 59	20m 22	0 40E	1.5 "	"	"	"	~10.3	—	—	—	—				GUIDE IN DEC very difficult
c	" AB	"	"	"	07:04	07 05	55s –	0:34E	"	"	" / 1.2	"	~8.5	—	—	—	—	"	"	"	
d	" D	"	"	"	07:09	07 11	2m 1.5	0:25E	"	"	" / 0.3	"	~7.5	—	—	—	—	"	"	"	
e	ALLEN 19 E A	06 20 56	-04 45 07	"	07:57	07:52	105 –	0.30E	"	"	" / 1.2	"	~8	—	—	—	—	"	"	"	
f	" B	"	"	"	08:00	08 02	7m 5m	0:17E	"	"	" / 0.8	"	~9.2	—	—	—	—	"	"	"	
1834a	ALLEN 760 A	20 12 48	-64 29 36	NOV 2/3	00:37	00:38	1m –	2.30W	2" "	"	" / 0.5	"	~7.0	—	—	—	—	"	"	"	T = 15°C RH 22%
b	" B	"	"	"	00:50	01:10	20m –	3.00W	"	"	"	"	~10.0	—	—	—	—	"	"	"	
c	" C	"	"	"	01:16	01:33	20m 17	3:20W	1.5 "	"	"	"	~10.0	—	—	—	—	"	"	"	
d	" 792 B	20 30 25	-40 58 06	"	01:48	01:52	4m –	3.20W	"	"	"	"	~8.4	—	—	—	—	"	"	"	
e	" A	"	"	"	01:55	01 59	3.5m 4m	3 40W	"	"	"	"	~8.4	—	—	—	—	"	"	"	
f	" 902 A	22 21 17	-72 54 17	"	02:14	02:18	4m –	2.00W	"	"	"	"	~8.4	—	—	—	—				
1835a	" B	"	"	"	02:40	02:45	4m –	2.30W	"	"	"	"	~8.5	—	—	—	—	"	"	"	
b	ALLEN 924 C	22 43 52	-79 58 22	"	02:56	03 23	27m 27	2 45W	"	"	"	"	~10.7	—	—	—	—	"	"	"	
c	" B	"	"	"	03 32	03 37	30m 5m	3 00W	"	"	" / 0.6	"	~10.5	—	—	—	—	"	"	"	interrupted due to HA limit —
d	ADS 2681 B	03 39 24	+05 03 21	"	04:09	04 20	10m "	1.15E	"	"	"	"	9.8	—	—	—	—	"	"	"	
e	ALLEN 105 A	04 28 01	-25 14 35	"	04:42	04:47	5m –	1:35E	"	"	" / 0.8	"	~9	—	—	—	—	"	"	"	
f	" C	"	"	"	04:47	04:59	10m –	1:25E	"	"	"	"	~9.5	—	—	—	—	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1979	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1836a	HD 42544B	05 38 25	-17 51 29	NOV 2-3	05:53	05:54	30s / 1.5	01:40E	1.5 / okay	3.42	100μ / 1.2	120 / 40	~6.3	-	—	—	—	IIIa-D	IIIa-F NM-071	ELEVATED	
b	4200A	05 38 25	-20 26 53	"	06:07	06:11	30s	01:20E	"	"	"	"	~6.1	—	—	—	—	"	"	"	
c	ALLEN 158A	05 49 36	-36 12 47	"	06:21	06:30	9m	01:15E	"	"	0.8	"	~9.5	—	—	—	—	"	"	"	
d	" B	"	"	"	06:34	06:47	10m	00:59E	"	"	"	"	~9.6	—	—	—	—	"	"	"	
e	" 163A	05 54 53	+13 55 36	"	07:09	07:10	30s / 1m	00:40E	"	"	"	"	~6.8	—	—	—	—	"	"	"	
f	" D	"	"	"	07:13	07:19	3ms / 6m	00:31E	"	"	"	"	~8.5	—	—	—	—	"	"	"	
1825a	HR 1702	05 11 16	-16 13	"	07:50	07:51	30 / —	00:45W	"	"	1.2	"	3.2	—	—	—	—	"	"	"	
b	1-13	05 13 43	-08 14	"	07:57	07:57	30s / —	00:50W	"	"	"	"	0.05	—	—	—	—	"	"	"	
c	1735	05 16 42	-06 52	"	08:01	08:01	30s / —	00:50W	"	"	"	"	3.5	—	—	—	—	"	"	"	
d	1851	05 30 53	-00 18	"	08:06	08:07	60s / —	00:40W	"	"	"	"	6.9	—	—	—	—	"	"	"	
e	1865	05 31 37	-17 51	"	08:09	08:09	5s / —	00:42W	"	"	"	"	2.0	—	—	—	—	"	"	"	
f	HD 46150	06 30 40	+04 57	"	08:27	08:28	1m / —	00:01W	"	"	"	"	6.8	—	—	—	—	"	"	"	
1838a	ADS 13632A	20 16 30	-12 34 36	3/4 NOV	00:54	00:54	12s / —	02:45W	2" / elec.?	"	"	"	5.1	—	—	—	—	"	"	"	T: 14.5°C RH 26%
b	" B	"	"	"	01:10	01:13	12m / 13m	03:05W	" / trans.	"	0.8	"	~9.6	—	—	—	—	"	"	"	
c	ALLEN 771A	20 20 39	+16 19 21	"	01:22	01:40	15m / 18m	03:25W	"	"	0.8	"	~10	—	—	—	—	"	"	"	
d	ALLEN 871A	21 58 19	-29 09 32	"	02:02	02:06	3.5m / 4m	02:15W	1.5 / "	"	"	"	~8.5	—	—	—	—	"	"	"	
e	ALLEN 880A	22 00 54	+04 39 37	"	02:22	02:27	5m / —	02:35W	"	"	"	"	~8.5	—	—	—	—	"	"	"	
f	" B	"	"	"	02:34	02:57	20m / 23	03:05W	1.5 / trans.	"	"	"	~10	—	—	—	—	"	"	"	
1839a	ALLEN 1480	23 22 10	-63 58 42	"	03:38	04:39	60m	03:20W	1.5 / trans.	"	"	"	~11.5	—	—	—	—	"	"	"	
b	" 16A	01 03 32	-05 24 21	"	04:49	04:57	7m / —	02:00W	"	"	"	"	~9.2	—	—	—	—	"	"	"	
c	ADS 1844A	01 44 43	-35 09 04	"	05:03	05:04	1m / —	01:30W	"	"	1.2	"	~6.4	—	—	—	—	"	"	"	
d	ALLEN 100A	04 18 04	-26 47 32	"	05:22	05:30	8m	00:40E	"	"	.8	"	~9.2	—	—	—	—	"	"	"	
e	" C	"	"	"	05:38	06:18	40m	00:10W	"	"	"	"	~11.2	—	—	—	—	"	"	"	
f	" 129A	05 18 21	-11 19 51	"	06:34	06:39	4m	00:35W	"	"	"	"	~8.6	—	—	—	—	"	"	"	
1840a	" B	"	"	"	07:03	07:10	6m	00:05W	"	"	"	"	~9.1	—	—	—	—	"	"	"	
b	ADS 4254C	05 38 25	-17 51 29	"	07:23	07:28	5m / 4m	00:04W	"	"	"	"	~8.5	—	—	—	—	"	"	"	
c	" D	"	"	"	07:30	07:40	9m	00:10E	"	"	"	"	~9.5	—	—	—	—	"	"	"	
d	" E	"	"	"	07:43	07:47	3.5m / 4m	00:15W	"	"	"	"	~8.4	—	—	—	—	"	"	"	
e	" F	"	"	"	07:51	07:55	2.5m / 3m	00:25W	"	"	"	"	~8.1	—	—	—	—	"	"	"	
f	" G	"	"	"	07:57	08:08	10m / 12m	00:40W	"	"	"	"	~9.3	—	—	—	—	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 253

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC	DATE U.T. 1979	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	I.T. CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1841a	ADS 13632A	20 16 30	-12 34 36	4/5 NOV	01 07	01:08	20s /	03.00W	2"5 / clear	3.42	100µ / 1.2	120 / 70	~6 0	—	—	—	—	IIa-D	M-S 15m 01s	LEVATO	T=14°C R.H. 23%
e	ALLEN 781A	20 23 18	-34 48 45	"	01:26	01:37	10m / 11m	02:50W	"	"	" / .2	"	~10	—	—	—	—	"	"	"	
d	ADS 17121B	23 56 18	-16 20 20	"	02.08	02.23	15m /	00:40W	"	"	"	"	~10	—	—	—	—	"	"	"	
e	ALLEN 11C	00 39 55	-52 12 44	"	02.33	03 35	60m / 62	01:10W	"	"	"	"	~11.5	—	—	—	—	"	"	"	
f	ADS 1394B	01 44 43	-25 09 04	"	03 40	03.43	2.5m / 3	00:10W	"	"	"	"	~8 i	—	—	—	—	"	"	"	
1842a	ADS 2016C	02 37 59	-28 15 25	"	04:24	05:15	50m /	00:50W	"	"	"	"	~11.5	—	—	—	—	"	"	"	
b	ALLEN 108C	04 36 32	-62 06 30	"	05:34	06:22	40m /	00:00	"	"	" / .6	"	~11	—	—	—	—	"	"	"	
c	" A	"	"	"	06.31	06 32	10s /	00:10W	"	"	/ 1.2	"	~6.5	—	—	—	—	"	"	"	
d	" 112A	04 48 04	-52 39 46	"	07 02	07 14	12m /	00.42W	"	"	/ .8	"	~7 8	—	—	—	—	"	"	"	check I.D.
e	217A	06 39 05	-62 46 31	"	07 35	07 48	10m /	00:40E	"	"	"	"	~9.6	—	—	—	—	"	"	"	
f	Comparison	"	"	"	—	—	25m /	—	"	"	"	"	~10.0	—	Ne	3s	—	"	"	"	
1843a	ALLEN 790	20 20. 39	+16 19 21	5/6 NOV	00:56	01:11	8m / 12m	03 05W	3"4-4"1 / clear	"	100 / .8	"	~9.1	—	—	—	—	"	"	"	T=12°5 R.H. 18%
b	" 781C	20 23 18	-34 48 45	"	01.18	01:42	20m / 24m	03 35W	3" / cloudy	"	"	"	~10.2	—	—	—	—	"	"	"	WINDY 32mph
c	HR 8732	22 57 00	-35 37	"	00.32	00.34	8s /	01.38W	"	"	" / 1.2	"	~6.7	F8III-IV	—	—	—	"	"	"	
d	"	"	"	"	00 35	00 36	40s / -	01 40W	"	"	"	"	~6.7	—"	—	—	—	"	"	"	
e	HR 39	00 12 04	+15 04	"	00.46	00 47	45 / -	00:34W	"	"	"	"	2.6	B3IV	—	—	—	"	"	"	de focus
f	"	00 12 04	+15 04	"	00.48	00:49	25 / -	00 34W	"	"	"	"	2.6	B2IV	—	—	—	"	"	"	de focus
1844a	ADS 17121A	23 56 18	-16 12 20	"	03 42	03 50	8m / -	—	"	"	" / .8	"	~9.2	—	—	—	—	"	"	"	
b	ALLEN 16B	01 03 32	-05 24 21	"	04 00	04:35	35m /	01:45W	" clear	"	/ .6	"	~11	—	—	—	—	"	"	"	
c	" C	"	"	"	04:41	05:31	50m /	02 45W	"	"	"	"	~11.3	—	—	—	—	"	"	"	
d	" 61B	02 33 14	-75 59 04	"	05:41	06:09	28m /	01 57W	"	"	"	"	~10.7	—	—	—	—	"	"	"	same conformation from A-
e	" 108A	04 36 32	-62 06 30	"	06:18	06:19	45s /	00 01W	"	"	" / 1.2	"	~6 5	—	—	—	—	"	"	"	
f	ADS 4254G	05 38 25	-17 51 29	"	06:32	06 50	15m / 18m	00:30E	"	"	" / .8	"	~7 5	—	—	—	—	"	"	"	
1845a	" D	"	"	"	07:13	07:29	13m / -	00 07W	2" "	"	"	"	~9 2	—	—	—	—	"	"	"	
b	ALLEN 148C	06 17 52	-44 50 7	"	07:36	07:45	7m / 9m	00:25E	"	"	"	"	~9 2	—	—	—	—	"	"	"	
c	ADS 5107A	06 27 50	-70 14	"	08:00	08:00	18s / 15s	00:10E	"	"	" / 1.2	"	~4.7	—	—	—	—	"	"	"	
d	" B	"	"	"	08:01	08:02	10s / -	00:08E	"	"	"	"	~5.2	—	—	—	—	"	"	"	
e	" C	"	"	"	08:03	08:05	6s /	00:05E	"	"	"	"	6.1	—	—	—	—	"	"	"	
f	ADS 5322A	06 39 54	+9 54 22	"	08:10	08:11	10s /	00:00	"	"	"	"	~5.0	—	—	—	—	"	"	"	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 254

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1983	DEC.	DATE U.T. 1979	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	I.T CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1846a	ALLEN 779C	20 26 39	+16 19 21	6/7 NOV	00:37	01:19	35m / 41m	03.15W	2" clear	3.42	100 / .6	120 / 7.0	~11.3	–	—	—	—	IIa-D	M-S 15m-67°	LEVATO	T=13°C R H 19%
b	ADS 14775AB	21 13 31	-00 55 31	"	01:36	01:38	80s / —	02.47W	"	"	" / .8	"	~7.5	—	—	—	—	"	"	"	
c	ADS 15902AB	22 22 57	-04 57 14	"	01:50	01:51	50s / —	01:45W	"	"	" / 1.2	"	~6.6	—	—	—	—	"	"	"	
d	" E	"	"	"	01:55	01:59	3.5m / —	01:55W	Velocity	"	" / .8	"	~8.5	—	—	—	—	"	"	"	
e	HR 8905	23 24 22	+23 16	"	02:43	02:44	12s	01:39W	2" clouds	"	" / 1.2	"	5.0	—	—	—	—	"	"	"	
f	"	"	"	"	02 44	02 45	6s	01:40 W	"	"	"	"	5.0	—	—	—	—	"	"	"	
1847a	HR 513	01 45.0	-05 50	"	03:07	03:09	6s / 8s	00:15E	"	"	"	"	~6.9	—	—	—	—	"	"	"	
b	"	"	"	"	03:10	03:11	30s	00:13E	"	"	"	"	6.9	—	—	—	—	"	"	"	
1848a	ALLEN 781B&C	23 18	-34 48 45	7/8 NOV	00:31	01:25	50m	03.30W	2" clear	"	100 / .6	"	~11.4	—	—	—	—	"	"	"	T=12°C R H 34%
b	ADS 14775C	21 13 31	-00 55 31	"	01:38	01:57	15m	03.05W	"	"	" / .8	"	~10	—	—	—	—	"	"	"	
c	ALLEN 779C	21 58 19	-29 09 32	"	02:06	02:36	30m	03:00W	"	"	1/6	"	~10.9	—	—	—	—	"	"	"	
d	" B	"	"	"	02 40	03:02	20m	03:25W	"	"	"	"	~10.6	—	—	—	—	"	"	"	
e	ADS 15902E	22 22 57	-04 57 14	"	03:13	03:19	5m	03:26W	"	"	" / .8	"	~8.5	—	—	—	—	"	"	"	
f	ADS 16392B	22 56 02	-03 21 57	"	03:35	04:00	25m	03:30W	"	"	/ .6	"	~10.6	—	—	—	—	"	"	"	
1849a	ALLEN 45B	02 11 32	-71 02 36	"	04:43	05:49	60m	02 02W	"	"	"	"	~11.5	—	—	—	—	"	"	"	
b	ADS 4241 C	05 37 42	-02 36 24	"	06:08	06:22	15m	00:45E	Clouds	"	"	"	~10.3	—	—	—	—	"	"	"	
1850a	HR 7635	19 58 00	+19 26	8/9 NOV	00:34	00:35	15s / 25s	03 00W	4" clear	"	" / 1.2	"	~5.0	—	—	—	—	"	"	"	T=11° R.H. 49%
b	"	"	"	"	00:35	00:36	15s / 12s	03:01W	"	"	"	"	"	—	—	—	—	"	"	"	
c	HR 7574	19 51 53	+18 37	"	00:40	00:42	20s / 80s	03:18	"	"	"	"	6.2	—	—	—	—	"	"	"	
d	"	"	"	"	00:43	00:44	25s / 40s	03.20W	"	"	"	"	"	—	—	—	—	"	"	"	
e	HR 7429	19 33 06	+07 20	"	00:50	00:51	13s / 40s	03:00W	"	"	"	"	5.5	—	—	—	—	"	"	"	
f	"	"	"	"	00:52	00:53	13s / 30s	02:58W	"	"	"	"	"	—	—	—	—	"	"	"	
1851a	HR 7602	19 54 18	+06 21	"	01:05	01:06	12s / 18s	03 30W	"	"	"	"	4.5	—	—	—	—	"	"	"	
b	"	"	"	"	01:06	01:07	12s / 9s	03:40W	"	"	"	"	"	—	—	—	—	"	"	"	
c	HR 7575	19 52 02	-03 09	"	~~01:15~~	~~01:18~~	15s / 40s	03.34W	"	"	"	"	5.6	—	—	—	—	"	"	"	
d	"	"	"	"	01:12	01:13	12s / 20s	03:50W	"	"	"	"	"	—	—	—	—	"	"	"	
e	HR 8033	20 57.9	-19° 06'	"	01:18	01:19	25s / 45s	02.47W	3" clear	"	"	"		—	—	—	—	"	"	"	
f	"	"	"	"	01:20	01:21	25s / 25s	02:50W	"	"	"	"		—	—	—	—	"	"	"	
1852a	HR 8232	21 30 17	-5° 40	"	01:35	01:36	35 / 55	02.34W	"	"	"	"	3.7	—	—	—	—	"	"	"	
b	"	"	"	"	01:37	01:57	35 / 25	02:31	"	"	"	"		—	—	—	—	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC	DATE U.T. 1979	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	I.T CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1852c	HR 8414	22 04.7	-0 25	NOV 8/9	01:40	01:41	5s /	01:58W	2"-3" clear	3.42	100 / 12	120 / 7.0	3.9	—	—	—	—	IIa-D	M-S 15M-67	LEVATO	
d	"	"	"	"	01:42	01:43	2s /	02:00W	"	"	"	"		—	—	—	—	"	"	"	
e	HR 8684	22 49.0	+24 29	"	01:46	01:47	5s / 12s	01:23W	"	"	"	"	4.5	—	—	—	—	"	"	"	
f	"	"	"	"	01:48	01:49	5s / 6s	01:25W	"	"	"	"		—	—	—	—	"	1	"	
1853a	HR 8905	23 24 22	+23 16	"	02:19	02:20	10s / 10s	01:24W	"	"	"	"	5.0	—	—	—	—	"	"	"	
b	"	"	"	"	02:21	02:21	5s / 5s	01:26W	"	"	"	"		—	—	—	—	"	"	"	
c	HR 39	00 12 04	+15 04	"	02:26	02:27	5s /	00:44W	"	"	"	"	2.6	—	—	—	—	"	"	"	
d	"	"	"	"	02:27	02:28	2s /	00:45W	"	"	"	"		—	—	—	—	"	"	"	
e	HR 157	00 36.3	+35 17	"	02:34	02:35	1m /	00:29W	"	"	"	"	6.2	—	—	—	—	"	"	"	
f	"	"	"	"	02:35	02:36	30s /	00:30W	"	"	"	"	"	—	—	—	—	"	"	"	
1854a	HR 280	00 57.8	-29 28	"	02:52	02:53	6s / —	00:24W	"	"	"	"	4.2	—	—	—	—	"	"	"	
b	"	"	"	"	02:53	02:54	3s / —	00:25W	"	"	"	"	"	—	—	—	—	"	"	"	
c	HR 513	01 45.0	-5 50	"	02 59	03 00	35s /	00:20E	2" clear	"	"	"	6.9	—	—	—	—	"	"	"	
d	HR 753	02 35.0	+06 48	"	03:05	03:07	6s /	00:58E	"	"	"	"	6.8	—	—	—	—	"	"	"	
e	"	"	"	"	03 08	03:09	32s /	01:00E	"	"	"	"		—	—	—	—	"	"	"	
f	HR 1084	03 31.9	-9 32	"	03:18	03:19	10s /	01:45E	"	"	"	"	4.6	—	—	—	—	"	"	"	
1855a	HD 22879	03 39 16	-03 17 33	"	03:50	03:52	2m /	01:22E	"	"	"	"	7.2	—	—	—	—	"	"	"	
b	"	"	"	"	03:53	03:54	1m /	01:20E	"	"	"	"						"	"	"	
c	Pleiades #96	03 48 27	24 17 04	"	04:26	04:28	2m /	00:52E	"	"	"	"	7.4	—	—	—	—	"	"	"	
d	"	"	"	"	04:29	04:30	1m /	00:50E	"	"	"	"	7.4	—	—	—	—	"	"	"	
e	" #910	03 47 51	+24 19 06	"	04:33	04:34	1m /	00:47E	"	"	"	"	6.6	—	—	—	—	B	"	"	
f	"	"	"	"	04:35	04:36	40s /	00:45E	"	"	"	"	6.6	—	—	—	—	"	"	"	
1856a	HR 1457	04 34.7	+16 27	"	05:10	05:11	30s /	00:57E	"	"	"	"	2.5	—	—	—	—	"	"	"	defocus
b	"	"	"	"	05:12	05:13	2s /	00:55E	"	"	"	"	"	—	—	—	—	"	"	"	
c	HR 1845	05 31.0	+18 34	"	05:17	05:19	1.5m /	01:47E	4" clear	"	"	"	6.7	—	—	—	—	"	"	"	
d	"	"	"	"	05:20	05:21	45s /	01:45E	"	"	"	"	"	—	—	—	—	"	"	"	
e	HR 1907	05 35.8	+9 14	"	05 25	05:26	20s /	—	"	"	"	"	5.1	—	—	—	—	"	"	"	
f	"	"	"	"	05:28	05:29	10s /	—	"	"	"	"	"	—	—	—	—	"	"	"	

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1857	α Psc A	22 56.4	-29° 44'	9/10 Nov	0140	0144	20,42,50	0h 18m W	3"/clear	-	50µ/1.2mm	6 1/4	1.25	A3 V	N/A	6C°		II-O	m-s		
	α PhE	00 25.4	-42° 27'	1971	0151	0201	1,5,3	6h 8m W	"	"	"	"	3.47	K0 III	"	"		"	6.7.2 15mm	"	
	β PhE	01 05.3	-46 51		0206	0223	5,45,2 4.5	10m E	"				4.2	G5							
1858	HR493	01 41.4	+20° 10'	"	03 26	0237	15m 20m	24m W	1.5/clear	"	"	"	6.06	K1 V	"	"		"	"	"	
1855	N' PhE	00 30.6	-48 35		0346	0356	4m ✓	1h 53m W	2"/clear				4.8	A0							
	K Tuc	01 15.2	-69 00		0356	0406	5m 5m	1h 17m W	"				4.8	F6							
	HR789	02 39.1	-43 01		0403	0406	3m ✓	0h 0m E					4.8	A2							
	K Ret	03 29.5	-63 04		0410	0414	3m ✓	43m E	"				5.1	F5							
	HR1196	03 48.0	-37 44		0419	0423	3m 3m	55m E					4.8	A0							
	HR1181	03 48.0	-37 44		0424	0429	5m ✓	46m E					5.4	A0							
	R Dor	04 37.6	-62 09		0518	0518	60s ✓	14m W	"				7-8	M6e							
	9 Lep	03 18.3	+03 17		0623	0630	6m ✓	1h 44m W	1.5-2				5.5	G5 V							
	HR1361	05 31.6	+01 37		0633	0638	4m ✓	22m E	"				5.1	B1 V							
	134 Tau	05 48.3	+12 35		0641	0645	3m ✓	21m E					4.8	B3 IV							
1855	HR2222	06 13.8	+13 47	"	0704	0711	2m ✓	29m E	"	"	"	"	5.7	B1 V	"	"		"	"	"	
	HD63077	07 45.0	-34 10		0716	0730	12m ✓	1h 41m E					6.0	G0 p							
	HR2281	06 18.6	-50 20		0734	0746	4m 40	1h 3m W					7.9	G2 IV							
1855	ζ CrA	19 01.7	-42 10	10/11	0010	0017	3m ✓	3h 51m W	1.5/clear	"	"	"	4.7	A0	"						
	ω Sgr	19 34.5	-26 22	Nov 1971	0022	0030	3m ✓	3h 11m W					3.5	G5							
	9' PAv	20 34.0	-60 42		0033	0039	5m ✓	2h 41m W	2"				5.0	F0							
	J Tuc	21 23.9	-65 08		0045	0050	4m 4	1m W	2"				4.4	A8							
	ε Mic	21 16.1	-32 18		0053	0057	4m ✓	2m W					4.8	A2 p							
	81 Aqr	23 05.5	-23 53		0111	0114	4m ✓	42m W	1.5/clear				5.4	G9							
	89 Aqr	23 08.5	-22 37		0114	0120	6m ✓	47m W					5.4	G2 IV A2							
	L PhE	23 34.0	-42 48		0126	0130	3m ✓	32m W					4.8	Ap							
	HR8759	23 36.5	-45 39		0133	0137	4m ✓	32m W					4.8	A2							
	N' PhE	00 30.5	-48 56		0141	0144	4m ✓						4.8	A0							
	K Tuc	01 14.7	-69 02		0147	0151	4m 5	47m E					4.8	F6							
	HR789	02 39.1	-43 03		0156	0200	4m ✓	2h 3m E					4.8	A2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 257

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1979	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1861	89 PEG	00 13.4	+20 03	10/11	0241	0312	30m ✓	1h 35m W	2" clear	2.8c	54µ/1.2mm	C7/449	6.4	M2 III	GC5	NeA		IIa-O	M-S		R.H 41% T15°C NOW.NE
	HR483	01 40.5	+42 23	Nov 1979	0316	0339	22m ✓ (32 WW)	35m W	"				5.6	G2V					67°F 15mm		
	14 ARI	02 08.1	+25 42		0343	0349	5m ✓	17m W	"				5.5	F2 III							
	HR677	02 18.3	+39 45		0353	0423	30m ✓	41m W					4.4	B5V							
	16 PER	02 48.5	+38 04		0425	0431	5.5m ✓	18m W	"				4.5	F2 III							
	HR753A	02 34.8	+06 48		0510	0611	55m ✓	2h 14m W	1"/clear				6.8	K4							
	HR875	02 55.6	−03 44		0615	0621	6m ✓	2h 1m W	1.5/clear				5.25	A1V							
	K96 CET	03 18.3	+03 19		0623	0655	10m ✓	1h 50m W	1.5/clear				5.5	G5V							
	46 TAU	04 12.2	+07 39		0639	0646	6m ✓	1h 10m W	1.5/clear				5.3	F3V							
	HD35600	05 25.8	+30 10		0656	0711	15m ✓		"				5.8	B9Ib							
	56 ORI	05 51.3	+01 52		0718	0740	21m ✓	36m W	"				6.2	K2 II							
	HR2392	06 31.8	−11 10		0746	0846	60m ✓	52m W	"				7.4	K0 III Ba3							36%H 12°CT Wind 18NE
1862	HR7446	19 35.8	−07 05	11/12	0007	0013	5m ✓	3h 17m W	1.5/clear	"	"	"	4.95	B6.5 III	"	"	"	"	"	"	38%H 13°C 10mph NNE
	HD217987	23 04.6	−36 01	Nov 1979	0021	0445	4h 20m ✓	4h 21m W	1.5-2"/clear				5.8	M2V							35%H. 14°C 20mph
	HD19445	3 07.2	+26 13		0451	0649	1h 58m ✓	223 W	2"/clear				8.3	F2							30%H 11°C 10mph
	HR2591	06 54.1	−42 21		0654	0847	1h 53m ✓	34m W	2"/clear				8:	C5, 2.5							35%H 10°C 20mph
1863	HD215617	23 16.1	−14 00	12/13	0032	0232	2h 2m ✓	2h W	2"/clear	"	"	"	8.8	F8	"	"	18 Lyr	"	"	"	10°C 40% no wind
	54 PSC	00 38.3	+21 09	Nov 1979	0-37	0259	22m ✓	1h 5m W	1" clear				6.5	K0V			3 Spec				
	HR453	01 40.6	+42 30		0303	0333	33m ✓ 25m	35m W	2" clear				5.57	G2V							
	107 PSC	01 41.5	+20 11		0415	0432	17m ✓	1h 35m W	1.5 clear				6.06	K1V							
	HR1054A	03 35.9	+00 32		0443	0515	32m		1"				6.8	G0V							
	28 TAU	03 47.9	+24 05		0533	0536	6m ✓	33m W	1.5 clear				B8.2	B8p							
	27 TAU	03 47.7	+24 00		0531	0541	8m ✓	37m W	"				3.5	B8 III							
	η^2 DOR	06 11.9	−65 36		0556	0646	52m ✓	40m E	2"/clear				6.5	M2.5 III							
	HR2281	06 18.5	−56 20		0654	0846	1h 52m ✓	1h 12m W	2"/clear				7.9	G2 Ib							
1864	ζ CRA	19 01.7	−42 06	13/14	0011	0017	30m 1h 2m 30m	4h 4m W	1.5/clear	3.32	10µm/0.8mm	12c/7.0	4.7	A2	N.A	10c	—	IIa-C	M-S		
	W SGR	19 54.7	−26 17	Nov 1979	0020	0028	1h 24m 15s	3h 21m W	"				5.5	G5					(67°F)		
	φ' PAV	20 34.1	−60 39		0031	0036	40, 50, 1hr 50m						5.6	F6							faint compan. near star A=3
	δ TUC	22 25.7	−65 05		0039	0047	22, 40, 50m ✓	1h 10m W	"				4.5	B8							
	ε MIC	21 16.5	−32 15		0050	0056	30, 34m 50s						4.8	A2p							12°C, 30%H, NO WIND

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1864	ξ_2 HER	23 05.6	-23 49	12/14	0109	0117	1h2m4s / 1m	5h 9m W	1.5 / clear	332	100μ / 8mm	12° / 7.0	5.4	G9	Na/A	10s		I-J			
(Cont)	β_1 AQR	23 08.1	-22 33	Nov 1974	0120	0128	1h2m4s / 1m	1h 6m W	"				5.4	G2 + A2					(15m) / 7m		pedestal
1865	ζ PHE	23 34.1	-42 44		0138	0142	15m 30s / 2m	56m W	"				4.4	Ap			7.1mm / 17°				
	HR8954	23 36.9	-45 36		0145	0150	" / 30s	1h 1m W	"				4.8	A2			17° / 33mm				
	N PHE	00 36.8	-48 54		0153	0159	" / 3m	16m W	"				4.8	A0							
	N Tuc	01 13.5	-68 58		0202	0215	3m 15s / 7m	12m E	"				4.8	F2							
	Vartan	02 34.9	+04 27		0336	0344	5m 15s / 2m	32m E	"				7.2	G2							
	Comet(?)	00 41.3	-09 21		0337	0407	16m 2m	2h 15m W	2 / clear				7.7	G2							
1866	HR789	02 37.1	-43 05	12/14	0358	0405	3m 1m 2m						4.8	A2							
	κ ERI	03 16	-6	12/14 1974	0507	0512	" / 1m	32m W					5.1	F5							
	HR1190	03 48.1	-37 46		0515	0530	" / 30s						4.6	A0							
	1184	03 43.1	-37 46			0530	3m 15s / 2m	37m W					5.4	A2							
	R Dor	04 37.0	-62 14		0540	0557	2m 4m 8s / 1m	6m W					7.1	M6							
	ζ DOR	05 05.6	-57 33		0559	0604	30s / 1m	12m E					5.2	F8							
	HD36515	05 30.5	-63 43		0617	0744	1m 22s / 1m	1h 3m W	1.5 / clear				7.5	IV-V							
	HD73584	08 38.4	-47 45		0755	0851	56m / 1m	58m E	"				7.1	K2 Vb							
1867	34 AQL	19 33.8	-07 05	14/15	0005	0007	15m 30s / 3m						4.75	B9 III							
	HR7845	20 31.6	-09 58	1974	0011	0020	1m 4m / 2m	2h 41m W					6.34	G0 IV							
	HD224618	23 58.2	-17 06		0026	0157	9m / 2m	5m E					7.8	K0 V							
	HD219617	23 16.1	-14 00		0201	0233	31m / 1m	2h 10m W					5.1	F8							
	51 PEG	00 13.4	+20 05		0226	0256	25m 5m / 1m	1h 34m W					6.4	M2 III							
	54 PSC	00 38.2	+21 07		0257	0317	25m 5m / 1m	1h 31m W					6.7	K0							
	HR483	01 40.2	+42 29		0320	0332	1.5m 3m 6s / 2m	44m W					5.6	G2 IV							
	107 PSC	01 41.3	+20 10		0336	0348	1m 3m 6s / 2m						6.1	K1 V							
1868	[illegible]	00 40.8	-07 17		0436	0455	30s / 1m	5h 22m W					7.4	G2 V							
	KUI (96)	03 18.2	+03 17		0520	0527	4m 15s 45s / 1m	1h 1m W					5.5	G0 IV							
	HR875	02 55.7	-03 47		0530	0536	30s / 1m	1h 34m W					5.65	A1 IV							
	28 Tau	03 42.8	+24 04		0540	0545	" / 1m	5m W					5.2	B8 p							
	27 Tau	03 43.9	+23 59		0547	0549	5m 30s / 2m	53m W					3.6	B8 III							
	46 Tau	04 12.5	+07 37		0552	0559	45s 15s / 1.2						5.8	F5 V							

NUMBER LC	OBJECT	R A	DEC	DATE U.T	U T EXP BEGIN	U T EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1868	56 CRI	05 51.2	+01 50	14/15	0622	0635	[illegible]		1" [illegible]	3.32	[illegible]	[illegible]	6.14	K2 II	N.A	10		II-O	[illegible]	[illegible]	
(Cont) 1869	HR1487	04 38.2	-14 27	Nov 1974	0642	0657	[illegible]	1h 11m W					6.5	K1 III			[illegible]		[illegible]		
	HR1685	05 09.8	-02 17		[illegible]	[illegible]	[illegible]	1 16 W					7.2	K1 [illegible]							
	HR2513	06 45.2	-52 12		0746	0821	[illegible]	2h W	1.5 [illegible]				7.3	[illegible]							14°C 20% H nowind
	HR3259	08 17.4	-12 38		0825	0845	[illegible]	40 E					7.	G7 5 [illegible]							[illegible]
1870	14 GRL	02 05.1	+25° 51'	15/16	0315	0324	[illegible]	11m W	[illegible]		"	"	5.6	F2 III	"	"					[illegible]
	VESTA	02 32.7	+04 29	Nov 1974	0327	0403	[illegible]	27m W	2" [illegible]				7.2	G2 V							
	HR753A	02 34.7	+06 47		0430	0457	[illegible]	1h 22m W	1.5 [illegible]				6.5	[illegible]							
	HR1191 (24131)	03 30.5	+34 17		0505	0518	[illegible]	25m W	[illegible]				5.8	B1 II							
	HD19445	03 07.0	+26 16		0521	0542	[illegible]	1h 31m W	[illegible]				8.3	F2 [illegible]							
	HR1536	04 47.0	-5 42		0545	0557	[illegible]	6m W	[illegible]				6.4	[illegible]							
	HD31966	04 59.3	+14 20		0601	0630	[illegible]	27m W					7.5	G5							
	HD33798	05 10.8	-44 58		0636	0648	[illegible]	2h 33m W	2" clear				10:	M1 p VI	wrong star - looks more like a G star						
1871	K DEL	20 38.0	+09 59	18/19	0018	0027	[illegible]	2h 57m W	2" clear				5.74	G5							12°C 38% 5 mph
	HR8531A	22 23.6	+57 54	Nov 1974	0032	0040	[illegible]	1h 24m W					6.0	G0							
	[illegible] And	22 53.7	-70 10		0044	0101	[illegible]	1h 15m W	"				6.7	G1							
	[illegible] CRA	19 01.6	-42 07		0100	0112	[illegible]	5h 18m W	"				4.7	A0							
	[illegible] SGR	19 54.7	-26 18		0116	0123	[illegible]	4h 37m W					5.5	G5							
	[illegible] PAV	20 54.1	-60 38		0127	0132	[illegible]	4h 5m W					5.0	F0							
	[illegible] Mic	21 16.8	-32 15		0135	0138	[illegible]	3h 29m W					4.8	A2 p							[illegible]
1872	80 AQR	23 05.7	-23 50	"	0151	0154	[illegible]	1h 39m W	1.5 [illegible]				5.4	G9							
	89 AQR	23 05.8	-22 33		0159	0205	[illegible]	2h 5m W	2" clear				5.4	G2 + A2							
	L PHE	23 34.1	-42 45		0208	0211	[illegible]	1h 45m W	"				4.8	A2							
	HR8959	23 36.9	-45 36		0214	0217	[illegible]	1h 47m W	"				4.8	A2							
	[illegible] Tuc	22 25.8	-65 05		0220	0225	[illegible]						4.4	[illegible]							
	[illegible] PHE	00 30.6	-48 54		0228	0230	[illegible]	1h 9m W	"				4.8	A0							
	K Tuc	01 15.7	-68 54		0235	0242	[illegible]	45m W	"				4.8	F0							
	HR483	01 40.4	+42 30		0248	0254	[illegible]						5.5	G2 V							
	HR493	01 41.4	+20 20		0258	0305	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]							
1873	9 CET	00 21.8	-12 21		0313	0334	[illegible]	2h 20m W					7.2	G2							13°C 3[illegible] 20 mph

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1873	HR753 A	02 34.9	+06 45	18/19	04 27	04 38	2,4	2h 12m W	1.15"/clear	332	100µ/.8mm	120/2nd	6.8	K4	NeA	10s		IIa-O	IIa-O		
1874	κ CET	03 18.5	+ 3 17	Nov 1977	04 41	04 45	1,2,4	35m W	"				5.5	G5 II			3m		7m GG14		
	HR 781	02 39 3	-4 3 00		04 52	04 53	1,2,4	1h 22m W	2"/clear				4.3	A2			15s				
	κ RET	03 29.4	-63 01		04 58	05 02	1,2,4	41m W	"				5.1	F5							
	ζ¹ RET	03 17.6	-62 41		05 03	05 17	1,2,4	1h 8m W					6.17	G2							
	ζ² RET	03 18.6	-62 38		05 20	05 25	2,4	175m W					5.8	G1							
	HR 1190	03 48.0	-37 44		05 32	05 35	1,2,4						4.8	A3							
	HR 1189	03 48.0	-37 44		05 36	05 43	2,4	1h 4m W					3.4	A2							
1875	R DOR	04 36.9	-62 10	"	05 51	06 17	2,4,12	49m W					7:	M6							
	ζ DOR	05 05.5	-57 31		06 04	06 13	2,4,12	26m W					5.2	F5							
	HR 1432	04 31.2	-14 26		06 26	06 33	2,4,12,32	1h 3m W	2" clear				6.5	K1 IV							
	HR 1685	05 09.9	-02 16		06 37	06 51	2,4,8m	49m W					7.3	K1 III-IV							
	HR 2007	05 47.6	-04 05		06 54	07 08	2,4,8	21m W	"				6.6	G4							
	HR 2067	05 54.9	+13 53		07 11	07 31	4,6,12	45m W	"				7.25	G6							
	HR 2290	06 19.8	-48 42		07 34	08 00	4,6,12	48m W					7.26	G4							
	HR 3259	08 17.5	-12 36		08 04	08 13	1,2,4m	36m E					6.8	G2 V-IV							
	HR 3538	08 53.3	-05 22		08 16	08 31	2,4,8	1h 15m E	3"/clear				6.7	G3 V							
1875	HR 8313	21 43.5	+16 53	27/28	01:25	01:30	20, 40, 80s	3h 15m W	2"/cirrus	332	100µ/.8mm	126/2nd	4.3	G5 IIb	NeA	20s		IIa-O	IIa-O		
	HR 8414	22 46	-00 24	Nov 1977	01:35	01:37	6,12,24s	2h 20m W					2.9	G2 Ib							
	HR 649	02: 11.6	+08 40		01:40	01:47	20, 40, 80s	0h 41m E	clouds coming!				4.4	G8 II							
	HR 1016	03: 20.6	-23 44		01:55	02 05	50, 100, 200s						5.5	G7 II							
1876	β Dor	05 :34.1	-62 34		03:00	03:10	1,2,4m/1½	2h 41m E					~4.5	G1 Ia							
	SOI 873	06 00.7	-71 13		03: 30	05:00	80m/120	1h 15m E	clear				~~4.7~~ 5.31	K7							
	ROCR -42	07 49.3	+01 55		05: 33	06: 50	75m/85	1h 17m E			1.6		~~4.0~~ 4.86	K0							
	#7	07 1 52	01 59		06 54	07 34	40m/50	0h 35m E					8.5	G5							
	SX Vel	08: 45.2	46 15		07 49	08:20	30m/x	0h 41m E					~8.2	G0							wrong * - B.-Spt
1877	HR 8313	21 43.5	+17 15	Nov 30 Dec 1977	00: 48	00: 56	1,2,4m/2½	3h 07m W	scat clouds			B→	5.5	G5 IIb	NeA	20s	30m	IIa-O			
	8414	22 04.7	-00 25		01 0 >01	01: 09	15, 60, 120s	3h 00m W	2-2½"				3.91	G2 Ib			16V				
	8684	22 48.9	+24 29		01: 30	01: 36	45, 90, 180s/60	2h: 43m W					4.41	G8 III							
	1016	~~03:20.6~~	-23 44		01: 50	02: 00	1½, 3.6m/3	1h 26m E					6.4	G7 II b							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
1878	SZ Tau	04:36.0	+18 28	Nov 30 Dec 1	02 58	03.15	15m/	1h25E	2½"/haze				~7.2		NeA	20s	30m	IIa-O	MWP II	Gue	
	β Dor	05:34.2	-62 34	1979	03:29	03 35	½,1,2m/	2h α E					~5.0				16V				
	V* ζ Car	08.28.0	-60 03		04 08	04 49	3m/	3.50E	clouds coming!				~9.0								
	SX Vel	08 44 6	-46 18		05 39	06 31	60m/	2.09E	clearer				~9.2								
	AOCM #8	07 51 1	+01:37		06 54	07 44	50m/	0h10E	more cirrus!				9.8								
	#3	07 49 6	01 49		07 53	08:18	23m/30	0h24W					~8.5	A0							
1879	β Dor	05 33	-62 35	Dec	02:45	02:51	30s,1m,2m/1m	2h30E	4"/Sc clouds		.8		~4.5	8C	NeA	20s	"	IIaC			
	VX Pup	07 31	-21 56	4/5	03:05	04 05	60m/75	3h15E	2½"/				~9.2	5C							
	SX Vel	08 44	-46 15	1979	04 20	04 40	20m/35	3h53E	/clouds				~8.2	8C							
	again				05 30	05:55	25m/30	2h40E					"	"							
	V Car	8:28	-60 07		05:59	06:20	20m/	1h57E					~8.0	8C							
	Y Car	10.32.4	-58 36		06 26	06 54	28m/	3h28E	cloudy again!				~8.0								
	ξ Pup	7.40.1	-31 39		06 59	07:15	15m/18	0h13E					7.6	G2 0 Ia	NeA	20s	30m	IIa-O			
1880	β Aqr	21 30.5	-05 40	Dec	00:38	00.42	2m,44s,55s/44	2h26W	3"/cirrus				3.73	G0 Ib			16v				
	ε Peg	21 43.2	+09 47	5/6	00 48	00 54	40s,80s,160s/60	3h25W					3.98	K2 Ib							
	α Aqr	22 04.8	-00 25	1979	01 00	01 05	36s,72s,144s/72	3h15W					3.91	G2 Ib							
	μ Peg	22 49.1	+24 30		01 11	01 19	1m,2m,4m/3½	2h45W					4.41	G8 III							
	HR 157	00 36.3	+35 17		01:26	01 34	6m/	1h12W	2"				6.4	G3 IIIa							
	ψ³ Psc	01 08.7	+19 33		01:39	01.45	5m/	0h51W					6.2	G0 III							
1881	SZ Tau	04 36.2	+18 30		02 05	02.15	4½m/	2h06E					~7.2	8C	NeA	20s	30m	IIa-O			
	LS 651	07 39.8	-31 39		02 36	04.40	2h/2½	2h47E			.6		10.5	OB			16v				
	β Dor	05 33.8	-62 34		05:26	05 33	36s,72s,144s/36	0h15W			.4		~4.5	8C							
	SZ Tau	04 36	+18 30		05 40	05 49	9m/	1h28W					7.1	8C							
	VX Pup	07 31.7	-21 53		05:59	06 39	40m/	0h37E	2"-4"				~8.9	8C							
	SX Vel	08 44.5	-46 15		06 5-2 ~~57~~	07 22	30m/	1h07E					8.8	8C							
	¥ Car	08 28.6	-60 06		07 30	07.50	20m/	0h25E					8.4	8C							
1882	SZ Tau	04 36	+18 30	Dec	00:51	01:18	27m/	2h51E	2"/clear				7.7	8C	Ne	20					
	β Dor	05 33.8	-62 24	8/9	01 31	01 37	40s,80s,160s/	3h30E					~5.0								
	LS 664			1979	02 18	04 06	115m/	5h08E	v windy!				10.2	OB							
	SZ Tau	04:36	+18:30		0502	05 15	13m	1h10W	cirrus but calmer!				7.3	8C							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1882	SX Vel	08 44	-46 15	Dec 9/19	05:29	06:29	60m/	0h11W	2"/cirrus		08/100μ		~7.2	dC						Cue	~ increasing cloud
cont	-S 6669	07 40.2	-31 39		06 38	07:30	50m/	0h17W	clear		0.6/		~9.6	OB							
	S Mus	12 12.5	-70 02		07 44	07:58	13m/	3h47E					7.2	dC							
1883	HR 7721	2 26.5	-47 42	Dec	01 10	01 :10	3s/		3"/clear	335	100μ/.8		4.1	B5 IV							
	HR 1092	3 30.9	-66 30	9/10	01 18		15s/		Qu. TE clouds in TE	↓			B5	B5 V							
	9006	23 47.3	-50 14		01 23		6s	1h23W					4.94	B3 V							
	9049	23 54	-32 02		01 34		22s/	2h07W					6.0	B6 V							
	1258	04 026	-20 0		02 18		24s	2h TE					6.3	B2.5V							
1884	LS 660	07: 400	-31 40		02:47	03:33	45m/	3h37E	2"/clear		:6		11.2	OB							
	665	07 402	-31 40		03 37	03 39	60m/	2h31E					11.7	OB							
	657	07 400	-31 41		05: ~~15~~	05:40	25m/	1h28E					10 8	OB	NeA						
1885	LS 670	07 401	-31 41		06 20	06 40	20m/	0h29E					10.6	OB							
	659				06:52	07:55	60m	0h47E					11.8	OB							
1886	HD 66194	07 58 C 1980	-66° 49	FEB 10-11	02.22	02:32	10m ✓	0h47E	1.5" clear	280	50μ/12	67/48	5.7	Be	—	—	—	IIa-O	M-S 15mm 67°	LEVATO	R.H. 53% T=66°F
	"	"	"	11-12	01:25	01:35	10m ✓	0h46E	2" clouds	"	"	"	"	"	—	—	—	"	"	"	
1887	ALLEN 244 A	07 04 8	-34 45	"	03:12	03:13	5sec	0h00W	2" clear?	ITAM 3.34	100/12	120/7.0	6.5	—	—	—	—	"	"	"	R.H. 47% T=68°F
	" B	"	"	"	03.23	03:25	2m	0h02W	"	"	"	"	N7.6	—	—	—	—	"	"	"	P(-3)
	" C	"	"	"	03:35	03:39	2m 24	0h37W	1.5" clear	"	"	"	N10.0	-	—	—	—	"	"	"	P(-1)
	" D	"	"	"	04:18	04:48	27m	0h25W	"	"	4/0.8	"	N10.8	—	—	—	—	"	"	"	P(+1)
	" 330A	08 55.6	-55 26	"	05 11	05 13	2m	1h00W	"	"	4/1.2	"	N7.7	—	—	—	—	"	"	"	P(+3)
	" B	"	"	"	05:20	05 23	3m	0h58W	"	"	"	"		—	—	—	—	"	"	"	P(+5)
1888	ALLEN 414A	11 33.2	-52 10	"	06:35	06:47	12m	0h05E	"	"	"	"	9.4	—	—	—	—	"	"	"	P(-6)
	ALLEN 415 B	11 37.7	-63 04	"	07:01	07:05	3.5m 4m	0h01W	"	"	"	"		—	—	—	—	"	"	"	P(-4)
	" A	"	"	"	07 07	07 10	2.5m	0h17W	"	"	"	"	7.6	—	—	—	—	"	"	"	P(-5)
	ALLEN 421 A	11 55.6	-32 09	"	07 30.5	07 36	4m	0h25W	"	"	"	"	8.3	—	—	—	—	"	"	"	P(-2)
	" B	"	"	"	07 43	07 47	4m	0h35W	"	"	"	"	~8.3	—	—	—	—	"	"	"	P(-)
	ALLEN 455 A	13 39.7	-28 08	"	07 03	07 09	4m	0h50E	"	"	"	"	~8.2	—	—	—	—	"	"	"	P(+)
1886	HD 66194	07 58.0	-66 49	12-13 TE 13	01:03	01 15	10m	0h12E	2" clear	2.80	50/12	67/46	5.7	—	—	—	—	"	"	"	P=5 IC. W. 10 km/h
1889	ALLEN 246 A	07 05.3	-42 17	"	02 08	02.10	2m	0h00E	2" clear	3.34	100/12	120/7	7.5	—	—	—	—	"	"	"	(-5)
	" B	"	"	"	02:19	02:27	8m	0h07W	"	"	"	"	~9.0	—	—	—	—	"	"	"	(-3)

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1980	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
1889	ALLEN 246C	07 05.6	-42 17	12-13 FEB	02 44	03 02	20m	00 50W	2" clear	IT CAM 3.34	100μ / 1.2	120 / 7	MC.0	—	—	—	-	IIa-O	H-S 15 min 68°F	LEVATC	(-1)
	" 246AB	07 26.9	-11 31	"	03:30	03:30.5	3x sec	00.50W	"	"	"	"	~6.1	—	—	—	—	"	"	"	(1)
	" " C	"	"	"	03.33	03:40	6m	01:00W	"	"	"	"	~8.5	—	—	—	—	"	"	"	(3) T-59°F RH 45% W=C.
	" D	"	"	"	03:45	04:01	14m	01:20W	"	"	"	"	~9.5	—	—	—	—	"	"	"	(5)
1890	" 271A	07 34.5	-22 19	"	04:28	04:28	10sec	01.40W	"	"	"	"	4.6	—	—	—	-	"	"	"	(-5)
	" B	"	"	"	04 33	04:43	10m	01:55W	"	"	"	"	~9.3	—	—	—	—	"	"	"	(-3)
	" C	"	"	"	04.47	05 09	20m	02.22W	"	"	"	"	~10	—	—	—	—	"	"	"	(-1)
	ALLEN 381B	10 38.4	- 55 30	"	06:25	06:26	15sec	00.38W	"	"	"	"	~50	—	—	—	—	"	"	"	(+1)
	" A	"	"	"	06.28	06:28	6sec	00.37W	"	"	"	"	~4.4	—	—	—	—	"	"	"	(+3)
	ALLEN 390A	10 43.7	- 70 45	"	06.45	06.46	50 sec	00.48W	"	"	"	"	~6.5	—	—	—	—	"	"	"	(+5)
1891	ALLEN 390B	"	"	"	06:59	07:00	1min 10sec	01.03W	"	"	"	"	~6.5	—	—	—	—	"	"	"	(-1)
	" C	"	"	"	07.05	07.47	30m	01.50W	"	"	"	"		—	—	—	—	"	"	"	(-4)
1892	ALLEN 251A	07 17 8	-24 56	13-14 FEB	01.05	01:05	8 sec	01 25E	2" clear	"	"	"	.44	—	—	—	—	"	"	"	R.H. 59% T=8°C w=3km/h (-5)
	" B	"	"	"	01:22	01.45	22m	00:45W	1.5" "	"	"	4/6.8	"	~10.5	—	—	—	—	"	"	GUIDED 14.5 (-3)
	" D	"	"	"	01 53	02 02	7m	00:25W	"	"	"	" / 1.2	"	~8.8	—	—	—	—	"	"	"	" (-1)
	ALLEN 253A	07 18.7	-23 59	"	02:19	02:30	9m	00:00	"	"	"	"	"	~9.1	—	—	—	—	"	"	"	59% W=18km/h 16°C (+1)
	" B	"	"	"	02 25	02 49	12m	00:20W	"	"	"	"	"	9.4	—	—	—	—	"	"	"	
	" C	"	"	"	02:52	03.34	30m	01 06W	"	"	"	"	"	~10.3	—	—	—	—	"	"	"	
1886	HD 66194	07 58 0	-60° 49	"	04:10	04:20	10m	01:10W	"	2 80	50μ / 12	ET 4/8	~5.7	—	—	—	—	"	"	"	Pos 12
1893	ALLEN 411A	11 27.8	-58 52	"	05:53	05 56	2m	00.45E	"	3 34	100μ / 1.2	120 / 7	~7.6	—	—	—	—	"	"	"	(+1)
	" C	"	"	"	06:32	07.06	30m	00:22W	"	"	"	"		—	—	—	—	"	"	"	(-3)
	ALLEN 426A	12 03.7	-61 49	"	07:14	07:18	3m 5	00.05W	"	"	"	"	~8.1	—	—	—	—	"	"	"	(-1)
	" B	"	"	"	07 25	07 30	4m	00:16W	"	"	"	"		—	—	—	—	"	"	"	RH 51% T=14° W=18km/h (+1)
	" C	"	"	"	07:39	08 09	30m	00.55W	"	"	"	"		—	—	—	—	"	"	"	(+3)
	HR 4369	11 15 9	-7 00	"	08 14	08:15	30 sec	01.50W	"	"	"	"	6.1	—	—	—	—	"	"	"	(+5)
1894	HD 228764	3 39.3	-03 17	14-15 FEB	00.56	00.58	2m	02.02W	24" "	"	"	"	7.2	—	—	—	—	"	"	"	(-5) RH 66% T. 5°C 28 km/h
	Feinb #242	3 44.3	+24 21	"	01 24	01.24	15sec	02.40W	"	"	"	"	3.8	—	—	—	—	"	"	"	(-3)
	"	"	"	"	01:25	01:25	5sec	02.41W	"	"	"	"	"	—	—	—	—	"	"	"	(-1)
	HR #1271	4 06 20	+15 06	"	01.34	01.35	20 sec	02.25W	"	"	"	"	6.4	—	—	—	—	"	"	"	(+1)
	HR 1319	4 14 06	+15 20	"	01:38	01.39	1m	02.20W	"	"	"	"	6.3	—	—	—	—	"	"	"	(+3)

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1894	HR 1351	04 18.32	+13 58	14-15 FEB	01:49	01:50	30sec	02.20W	2" clear	IT 3.34	100μ / 12	120 / 7	–	—	—	–	–	IIa-C	H-S 670 LE VHR 15 mm		(+5)
1895	ALLEN 267A	07 31.2	-43 N	"	02.24	02.29	4m	CC:10E	1"5-2" clear	"	"	"	8.2	—	—	—	—	"	"	"	(-5)
	" C	"	"	"	02 35	02.51	15m	CC 15W	"	"	" / C 2	"	-	—	—	—	—	"	"	"	(-3) T-14 S w-32 RH 64%
	ALLEN 267A	07 32 3	-49 17	"	03:02	03:04	2m	CC 25W	"	"	1.2	"	7?	–	"	—	—	"	"	"	(-1)
	" B	"	"	"	03 08	03:22	13m	CC:45W	"	"	"	"	81.5	–	—	–	—	"	"	"	(+1)
	" C	"	"	"	03.36	04.14	35m	01.35W	"	"	"	"	~11.0	–	–	—	—	"	"	"	(+3) Eroded on Disc.
	ALLEN 316A	08 20.5	-71 28	"	04.20	04:21	2cs	CC:50W	"	"	"	"	5.4	–	—	–	—	"	"	"	(+2)
1886	HD 66194	07 58 0	- 60 50	"	05 04	05:14	10m	02:10W	"	2 80	50μ / 12	67 / 448	~5.7	—	—	–	—	"	"	"	TC1 (+4)
1886	ALLEN 316B	08 20.5	-71 28	"	05 32	05 33	2cs	02 07W	"	3.34	100μ / 12	120 / 7	~5.4	–	—	—	—	"	"	"	(-2)
	" C	"	"	"	05 38	05 39	1m	02.10W	"	"	"	"	-	—	—	—	—	"	"	"	(-3)
	ALLEN 356A	09 47.1	- 60 57	"	05.49	06:01	12m	01 10W	"	"	"	"	8.7	—	—	—	—	"	"	"	(-1)
	" B	"	"	"	06 10	06.41	25m	01 50W	"	"	"	"		–	—	—	—	"	"	"	(+1)
	ALLEN 375A	10 30.2	-42 08	"	07.03	07 05	2m	01 30W	"	"	"	"	7.5	—	—	—	—	"	"	"	(+3) R H 53% T-15° W=2m
	" B	"	"	"	07 09	07 14	5m	01:40W	"	"	"	"		–	—	—	—	"	"	"	
1897	ALLEN 436C	12 08.4	-11 54	"	07 56	07 58	10sec	CC:45W	"	"	"	"		—	—	—	—	"	"	"	
	" A	"	"	"	08 02	08:03	1m	CC:49W	"	"	"	"	6.8	–	—	—	—	"	"	"	
	HR 5193	13.47.6	-42 22	"	08:20	08.20	30sec	CC:30E	"	"	"	"	3.5	–	—	—	—	"	"	"	
	HR 5235	13 53.7	+18 31	"	08:27	08 27	30sec	CC:30E	"	"	"	"	3.3	–	—	—	—	"	"	"	W=32 T=15°C RH 53%
	HR 5985	16 03.7	-19 44	"	08:35	08.35	10sec	02.35E	"	"	"	"	4.9	–	—	—	—	"	"	"	
	HR 5993	16 05 21	-20 36	"	08:38	08.40	5sec	02.32E	"	"	"	"	3.9	–	—	—	—	"	"	"	
1898	HD 22879	03 39 16	-03 17.	15-16 FEB	00 50	00.51	1m	02.10W	2" clear	"	"	"	7.2	–	—	—	—	"	"	"	T=15.5 W=10 km RH=66%
	Feinds #242	03 44 0	+24 17	"	01.00	01 00	25sec	02 15W	"	"	"	"	3.8	–	—	—	—	"	"	"	
	" #996	03 48.5	+ 24 17	"	01 13	01:16	2.5m	02.25W	"	"	"	"	7.4	—	—	—	—	"	"	"	
	"	"	"	"	01 17	01:19	1.5m	02 28W	3" clear	"	"	"	7.4	—	—	—	—	"	"	"	superimposed
	" #520	03 45.9	+23 51	"	01 24	01 26	100sec	02.38W	"	"	"	"	6.9	–	—	—	—	"	"	"	
	" #520	"	"	"	01:27	01 28	50sec	02.40W	"	"	"	"	69	—	—	—	—	"	"	"	
1899	ALLEN 272A	07 35.2	-23 46	"	02.02	02.06	3.5m	CC:30E	2" clear	"	"	"	8.2	–	—	—	—	"	"	"	
	" B	"	"	"	02 13	02 33	20m	CC:05E	"	"	"	"	~10	—	—	—	—	"	"	"	
	" C	"	"	"	02 36	03.01	25m	00:24W	"	"	"	"	~10.2	—	—	—	—	"	"	"	R = 52% T: 16°C W=27
	" 272A	07 37.8	-26 47	"	03:19	03:19	7sec	00:40W	"	"	"	"	44	—	—	—	—	"	"	"	+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS I.T	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1897	ALLEN 278B	07 37.8	-26 47	15-16 FEB	03:27	03 27	10 sec	00.5 W	2" clear	3.34	100μ / 1.2	120 / 7	4.7	—	—	—	—	IIa-D	M-S 67° 15m -	LEVATO	(+3)
	ALLEN 280A	07 38.6	-49 00	"	03·30	03.31	1m	00:5 W	"	"	"	"	6.7	—	—	—	—	"	"	"	(+V)
1886	HD 66 194	07 58 0	-60 49	"	03:52	04.02	10 m	01.1 W	"	2.8	50μ / 1.2	67 / 448	5.7	—	—	—	—	IIa-O	"	"	Pos 16 -
1900	ALLEN 369A	10 15.2	-44 09	"	05.32	05:38	6 m	00 21 W	"	3.34	100μ / 1.2	120 / 7	~8.7	—	—	—	—	IIa-J	"	"	GUIDED in δ -
	" B	"	"	"	05:48	06:04	15m	00·48 W	"	"	"	"	-	—	—	-	—	"	"	"	T=16° W=2 - RH 41% 11.7°
	ALLEN 396A	10 52.6	-58 44	"	06:45	06·45	4s	00·50 W	"	"	"	"	3.9	—	—	—	—	"	"	"	
	" B	"	"	"	06·57	06·57	30s	01 05 W	"	"	"	"		—	—	—	—	"	"	"	divided components
	" C	"	"	"	07.02	07 18	15m	01.25 W	"	"	"	"		—	—	—	—	"	"	"	
	ALLEN 397A	10 54.0	-63 51	"	07.26	07.37	8m	01:42 W	3" "	"	"	"	9 C	—	—	—	—	"	"	"	
1901	ALLEN 251D	07 18.0	-24 54	16-17 FEB	00:51	00·54	3.5m	01.25 E	2" clear	"	"	"	-	—	—	—	—	"	"	"	R.H. 70%. T = 15.5° W = 2 m/s.
	" B	"	"	"	01:07	01·27	20 m	00·50 E	3"=6" 207 - "	"	"	"		—	—	—	—	"	"	"	GUIDED in δ Spectrum Another star, on slit, can be noted - very poor seeing
	ALLEN 260D	07 26.5	-11 41	"	03:04	03:26	20m	01:00 W	4" 207 clear	"	"	"		—	—	—	—	"	"	"	R.H. 80% -
	ALLEN 280B	07 38.3	-49 00	"	03:52	04:24	30 m	01.48 W	5"? "	"	"	"	11	—	—	—	—	"	"	"	
	ALLEN 294A	08 07.1	-02 57	"	04,31	04:31	8 sec	01 26 W	"	"	"	"	4.4	—	—	—	—	"	"	"	
	" C	"	"	"	04.35	04:39	3.5m	01·33 W	"	"	"	"	7.9	—	—	—	—	"	"	"	
1902	HD 22879	03 39 16	-03 17	17-18 FEB	00:45	00:46	40 sec	02.12 W	2" clear	"	"	"	7.2	—	—	—	—	"	"	"	
	Pleiades #242	03 43.9	+24 17	"	00:55	00 55	8 sec	02:15 W	4" "	"	"	"	3.8	—	—	—	—	"	"	"	
	"	"	"	"	00:56	00:56	3 sec	02.16 W	4" "	"	"	"	3.8	—	—	—	—	"	"	"	
	" #246	03 48.5	+ 24 17	"	01:02	01:06	3.5m	02.23 W	4" "	"	"	"	7.5	—	—	—	—	"	"	"	
	"	"	"	"	01:07	01:09	2m	02.25 W	4" "	"	"	"	"	—	—	—	—	"	"	"	
	HK 1279	04 06 20	+15 06	"	01:16	01:17	30 sec	02:17 W	2" "	"	"	"	6.4	—	—	—	—	"	"	"	W = C RH. 67% T. 15°C
1903	HK 1319	04 14.1	+15 20	"	01:42	01:43	1m	02:33 W	"	"	"	"	6.3	—	—	—	—	"	"	"	
	"	"	"	"	01.44	01:45	30 sec	02: 35 W	"	"	"	"	"	—	—	—	—	"	"	"	
	HK 1351	04 18 32	+13 58	"	01·49	01:50	20 sec	02 37 W	"	"	"	"	5.9	—	—	—	—	"	"	"	
	HD 27534	04 20.1	+18 22	"	01.58	02:00	1.5m	02 44 W	3" "	"	"	"	6.7	—	—	—	—	"	"	"	
	"	"	"	"	02:00	02:01	45 sec	02:45 W	"	"	"	"	"	—	—	—	—	"	"	"	
	HK 2534	06 49.9	-8 01	"	02.08	02:09	40 sec	00·2 W	2" "	"	"	"	6.3	—	—	—	—	"	"	"	
1904	HD 66 194	07 58.0	-60 49	"	03.00	03 11	10 m	00:15 W	clear	2.80	50μ / 1.2	67 / 448	5.7	—	—	—	—	"	"	"	Pos 6 -
1905	ALLEN 274AB	07 37.6	-01 24	"	03:46	03:52	6 m	01:20 W	2" "	3.35	100μ / 1.2	120 / 7	8.7	—	—	—	—	"	"	"	
	" D	"	"	"	03:56	04·07	10 m	01·35 W	"	"	"	"	9.3	—	—	—	—	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV.	OBS	REMARKS
1905	ALLEN 275 C	07 37.6	-01 24	17/18 FEB	04:19	04:28	10m	01:57W	2" clear	3.35	100μ/1.2	120/1.2	9.3	—	—	—	—	IIa-I	M-S 67° 15min	EVA To	
	ALLEN 280 C	07 38.9	-48 49	"	04:44	05.21	35m	02 49W	4"-3" clear	"	"	"	V10.4	—	-	-	—	"	"	"	
	" 287A	07 53.2	-50 49	"	05:29	05:37	7m	02.50W	3" "	"	"	"	8.7	—	—	-	—	"	"	"	R.H. 6.8% T=14° W=20 km/h
	" 294A	08 07.2	-02 53	"	05:42	05:43	15sec	02.41W	"	"	"	"	4.4	—	—	—	—	"	"	"	
1906	ALLEN 348A	09 24.7	-48 07	"	06 43	06.53	8.5m	02.38W	3"-4" clear	"	"	"	8.9	—	—	-	—	"	"	"	
	NGC 3293 #1	10 35.0	-57 58	"	07:35	07:39	4m	02:10W	"	"	"	"	8.2	—	—	-	—	"	"	"	
	" #26	"	"	"	07:46	07:51	4.5m	02.20W	"	"	"	"	8.3	—	—	-	—	"	"	"	
	" #52	"	"	"	08:02	08 11	9m	02.45W	"	"	"	"	9.0	—	—	—	—	"	"	"	
1907	PLEIADES #520	03 48.5	+24 17	18-19 FEB	00:56	00:58	2m	02.19W	2" clear	"	"	"	7.4	—	—	—	—	"	"	"	
	" #520	03 46.0	+23 51	"	01:03	01:05	80sec	02.22W	"	"	"	"	6.9	—	—	—	—	"	"	"	
	"	"	"	"	01:06	01:07	40sec	02.30W	"	"	"	"	"	—	—	—	—	"	"	"	
	" 910	03 47.1	+24 19.6	"	01.13	01.15	70sec	02.38W	"	"	"	"	6.6	—	—	—	—	"	"	"	RH 80% W=0 T=14°C.
	"	"	"	"	01:16	01:17	31sec	02.40W	"	"	"	"	"	—	—	—	—	"	"	"	
	" 924	03 48.0	+24 11	"	01.23	01 27	4m	02.50W	"	"	"	"	7.9	—	—	—	—	"	"	"	
1908	HR 1319	04 14.2	+15 20	"	02:00	02.01	60sec	02:55W	"	"	"	"	6.3	—	—	—	—	"	"	"	
	"	"	"	"	02:02	02:03	30sec	02.57W	"	"	"	"	"	—	—	—	—	"	"	"	
	HR 1552	04 49.9	+5 33	"	02:10	02:10	3sec	03.01W	"	"	"	"	3.5	—	—	—	—	"	"	"	T=13°C W=0 RH. 75%
	HD 36936	05 34.0	-4 22	"	02:21	02.26	45m	02.08W	"	"	"	"	8.6	—	—	—	—	"	"	"	
	HR 1890	05 34.4	-4 31	"	02.34	02.35	40sec	02:10W	"	"	"	"	6.4	—	—	—	—	"	"	"	
	HR 1891	05 34.4	-4 31	"	02.39	02.40	30sec	02:15W	"	"	"	"	6.1	—	—	—	—	"	"	"	
1909	HR 1899	05 34.4	-5 56	"	03:26	03:26	6sec	03:00W	"	"	"	"	2.5	—	—	—	—	"	"	"	star on slit out of focus
	HR 1903	05 35.0	-1 13	"	03:29	03:29	6sec	02.04W	1"-5" "	"	"	"	1.5	—	—	—	—	"	"	"	" " " " " "
	HR 2294	06 22.3	-17 56	"	03:34	03:34	"	02.20W	"	"	"	"	1.7	—	—	—	—	"	"	"	" " "
	HD 46150	06 30.7	+4 57	"	03:47	03:48	55sec	02.27W	"	"	"	"	6.6	—	—	—	—	"	"	"	
	HD 46223	06 31.0	+4 50	"	03:48	03:50	70sec	02.27W	"	"	"	"	6.9	—	—	—	—	"	"	"	
	HD 46149	06 30.8	+05 03	"	03:53	03:56	2.3m	02.35W	"	"	"	"	7.5	—	—	—	—	"	"	"	
1910	HR 2653	07 01.9	-23 48	"	04:15	04:15	2sec	02:24W	"	"	"	"	3.0	—	—	—	—	"	"	"	
	HR 2693	07 08 19	-26 21	"	04:18	04:18	8sec	02.26W	"	"	"	"	2.5	—	—	—	—	"	"	"	out of focus on slit
	HR 2706	07 10 22	+24 10	"	04:24	04:25	30sec	02.25W	1"-5" "	"	"	"	5.7	—	—	—	—	"	"	"	
	HR 2827	07 23 08	-29 15	"	04:31	04:31	7sec	02.13W	"	"	"	"	2.3	—	—	—	—	"	"	"	out of focus on slit

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1910	HR 3165	08 03.4	-39 55	18-19 FEB	04:53	04:53	9sec	02:00W	1" clear	3 35	100μ / 12	12c / 7	2.0	—	—	—	—	IIa-D	M-S 670 15 min	LEVA	DC. cut off from slit
	HR 3975	10 05.9	+16 52	"	05:01	05 01	3 sec	00:05W	"	"	"	"	3.5	—	—	—	—	"	"	"	
1911	ALLEN 369B	10 15.2	-44 08	"	06:02	06:10	8m	01:05W	"	"	"	"		—	—	—	—	"	"	"	
	ALLEN 396A	10 52 8	-58 45	"	06:24	06:24	15sec	00:42W	"	"	"	"		—	—	—	—	"	"	"	
	" B?	"	"	"	06:27	06:29	2m	00:45W	"	"	"	"		—	—	—	—	"	"	"	I.D. bien. checke
	ALLEN 4218	11 56.8	-32 11	"	07:01	07:33	30m	00:47W	"	"	1 / 0.6	"		—	—	—	—	"	"	"	
	" 4228	11 58.3	-62 41	"	07:39	07:56	15m	01:07W	"	"	" / 1.2	"		—	—	—	—	"	"	"	
	" A	"	"	"	07:59	08:12	12m	01:25W	"	"	"	"		—	—	—	—	"	"	"	
1912	Abell 6, #457	03 45.8	+24 04	17-20 FEB	01:06	01:14	2.5m	02:42W	elear	"	"	"	8.8	—	—	—	—	"	"	"	
	HD 27808	04 22.6	+21 40	"	01:27	01:31	3.5m	02:21W	2" / "	"	"	"	8.0	—	—	—	—	"	"	"	
	HR 1412	04 27.3	+15 49	"	01:36	01:36	4sec	02:22W	"	"	"	"	3.6	—	—	—	—	"	"	"	
	HD 36936	05 34 0	-04 22	"	01:43	01:49	5m	01:30W	"	"	"	"	8.6	—	—	—	—	"	"	"	
	HR 1899	05 34.0	- 5 56	"	01:58	01.58	25sec	01:37W	"	"	"	"	2.5	—	—	—	—	"	"	"	
	HR 1903	05 34.9	- 1 13	"	02:02	02 02	25sec	01:40W	"	"	"	"	1.5	—	—	—	—	"	"	"	out of from. slit
1913	HR 2294	06 22.3	-17 56	"	02.18	02.18	25sec	01:10W	"	"	"	"	1.7	—	—	—	—	"	"	"	
	HD 46150	06 30.7	+ 4 57	"	02.25	02 26	50sec	01:08W	"	"	"	"	6 6	—	—	—	—	"	"	"	
	HD 46202	06 30.9	+04 59	"	02.30	02 33	2.5m	01:15W	"	"	"	"	8.0	—	—	—	—	"	"	"	
	HD 46223	06 31.0	+ 4 50	"	02.38	02.40	70sec	01:25W	"	"	"	"	6.9	—	—	—	—	"	"	"	T = 13°C RH 66% W = 15 km/h.
	HD 46149	06 30 46	+05 03	"	02.44	02 46	2m	01.29W	"	"	"	"	7.5	—	—	—	—	"	"	"	
	HR 2456	06 39.6	+09 55	"	02.52	02.52	60sec	01:25W	"	"	"	"	4.4	—	—	—	—	"	"	"	
1914	HR 2653	07 01.9	-23 48	"	03:28	03:28	25sec	01:40W	"	"	"	"	3.0	—	—	—	—	"	"	"	
	HR 2827	07 23.1	-29 15	"	03:33	03:33	25sec	01:25W	"	"	"	"	2.3	—	—	—	—	"	"	"	out of from. slit.
	HR 3165	08 03.4	-39 55	"	03 40	03:40	45sec	00:50W	"	"	"	"	2.0	—	—	—	—	"	"	"	" " " " "
	HR 3975	10 05.9	+16 52	"	03:48	03.48	35sec	01:05E	"	"	"	"	3.5	—	—	—	—	"	"	"	
	HR 2615	06 54.5	+16 13	"	03:56	03:57	1m	02:10W	1.5" / "	"	"	"	5.7	—	—	—	—	"	"	"	
	HR 2646	07 00.9	-27 54	"	04:04	04.04	12sec	02.17W	"	"	"	"	3.5	—	—	—	—	"	"	"	
1915	HR 3026	07 43.1	-15 44	"	04:31	04 33	100 sec	02:00W	"	"	"	"	6.3	—	—	—	—	"	"	"	
	HR 3547	08 54.2	+06 02	"	04:41	04.41	15sec	01:00W	"	"	"	"	4.4	—	—	—	—	"	"	"	
	HR 3950	09 58.9	+08 09	"	04 46	04.47	45 sec	00:00	"	"	"	"	4.7	—	—	—	—	"	"	"	
	HR 4031	10 15.4	+23 33	"	05:00	05:00	3.5sec	00:03E	"	"	"	"	3.7	—	—	—	—	"	"	"	T = 13°C " - 32 km/h RH 56%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL	DEV	OBS	REMARKS
1916	ALLEN 408A	11 17.5	-76° 45'	19-20 FEB	06:35	06:50	10m	06:47W	1.95 / clear	3.34	100μ / 1.2	120 / 7	~9.2	—	—	—	—	IIaD	M-5 67 15min	LEVATOR	
	" B	"	"	"	06:52	07:08	10m	07:05W	"	"	"	"	~9.6	—	—	—	—	"	"	"	
	ALLEN 418A	11 37.3	-63 05	"	07 16	07 18	2m	07:55W	"	"	"	"	7.6	—	—	—	—	"	"	"	T=12°C R.H. 62% W=30km/h.
	" 439A	12 35.2	-52 06	"	07.32	07 53	20m	08:30W	"	"	"	"	~10.0	—	—	—	—	"	"	"	
	" C	"	"	"	07 56	08:20	20m	08:57W	"	"	"	"	~10.0	—	—	—	—	"	"	"	
1917	HR 1899	05 34.4	-5 56	20-21 FEB	00:49	00:49	2 sec	00:32W	"	"	"	"	2.5	—	—	—	—	"	"	"	
	HR 1903	05 34.9	-1 13	"	00:53	00:53	2 sec	00:35W	"	"	"	"	1.5	—	—	—	—	"	"	"	
	HR 2294	06 22.3	-17 56	"	01:01	01:01	2 sec	00:05E	"	"	"	"	1.7	—	—	—	—	"	"	"	
	HR 2456	06 39.6	+09 55	"	01 13	01.13	7 sec	00:10E	"	"	"	"	4.4	—	—	—	—	"	"	"	
	HR 2653	07 01.9	-23 48	"	01.19	01.19	3 sec	00:25E	"	"	"	"	3.0	—	—	—	—	"	"	"	T=12.5°C R.H. 70% W=13 km/h.
	HR 2827	07 23.1	-29 15	"	01.26	01 26	2 sec	00:40E	"	"	"	"	2.3	—	—	—	—	"	"	"	
1918	HR 3165	08 03.4	-39 55	"	02 03	02 03	3 sec	00:43E	"	"	"	"	2.0	—	—	—	—	"	"	"	
	3547	08 54.3	+06 02	"	02.09	02.09	5 sec	01.29E	"	"	"	"	4.1	—	—	—	—	"	"	"	
	ALLEN 266 D	07 27.0	-11 35	"	02.22	02.53	30m	00:44W	"	"	"	"	~9.5	—	—	—	—	"	"	"	
	ALLEN 275A	07 37.6	-01 24	"	03 01	03.06	4m	00:45W	"	"	"	"		—	—	—	—	"	"	"	
	" 287 A	07 53.2	-50 51	"	03.16	03 21	5mm	00:43W	"	"	"	"		—	—	—	—	"	"	"	
	" B	"	"	"	03:26	03:58	30m	01.22W	"	"	"	"	~10.5	—	—	—	—	"	"	"	R.H. 20%
1919	ALLEN 294A	08 07.8	-02 57	"	04.17	04 57	1 sec	01:12W	"	"	"	"	~4.4	—	—	—	—	"	"	"	
	" 293A	08 05.0	-33 29	"	05 04	05 06	30 sec	01:19W	"	"	"	"	~6.0	—	—	—	—	"	"	"	
	" 297A	08 08.1	-61 02	"	05 14	05 15	5 sec	02 25W	"	"	"	"	~6.6	—	—	—	—	"	"	"	
	" 322A	08 37.8	-46 41	"	05:24	05 29	4m	02 05W	2.11	"	"	"	~8.6	—	—	—	—	"	"	"	
	" 325A	08 43.9	-41 13	"	05.37	05 40	2.5m	02 12W	"	"	"	"	~7.7	—	—	—	—	"	"	"	
	" 328A	08 52.0	-38 10	"	05.48	06:03	14m	02 30W	"	"	"	"	~9.6	—	—	—	—	"	"	"	W=30km/h T=11.5°C R.H. 9%
1920	ALLEN 341A	09 24.6	-48 11	21/22	05 37	05 44	5m	01 41W	2.11 / 2.14	"	"	"		—	—	—	—	"	"	"	
	" B	"	"	"	05 47	06.14	24m	02.10W	"	"	"	"	—	—	—	—	—	"	"	"	T=11.5° 89% RH W=50km/h
	" 356 A	09 47.2	-60 55	"	06:19	06:31	10m	02 05W	"	"	"	"		—	—	—	—	"	"	"	
	" 430 A	12 08.3	-11 48	"	06:39	06:43	3m	00:05E	3.11	"	"	"		—	—	—	—	"	"	"	
	29 Crt	10 45.0	-19 29	"	07 03	07.04	1m	01:50W	"	"	"	"		—	—	—	—	"	"	"	
	NP 10 H	12 38.8	-11 34	"	07 14	07 24	10m	00 17W	"	"	"	"		—	—	—	—	"	"	"	
1921	ALLEN 269C	07 32.8	-49 17	22/23 FEB	01:00	01.14	60m	01:00E	3.11 / clear	"	0.8	"	~11	stopped after 14 minutes cloud to high humidity							T=12°C W=15km/h R.H. 85%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1921	ALLEN 275 C	07 37.6	-01 24	22/23 FEB	03:04	03:26	20m	01:15W	3" / clear	3.34	110 μ / 1.2	120 / 7		—	—	—	—	IIa-D	H-S 67° 15m	LEVA TC	W= 36 km/h T= 11°C R.H. 90%
	" D	"	"	"	03:28	03:50	20m	01:38W	"	"	"	"		—	—	—	—	"	"	"	
	ALLEN 293 B	08 05.0	-33 34	"	04:08	04:13	4.5m	01:32W	"	"	"	~~8.4~~ 11	8.4	—	—	—	—	"	"	"	
	ALLEN 294 B	08 07.5	-02 59	"	04:21	04:42	20m	02:00W	"	"	"	"		—	—	—	—	"	"	"	
	" C	"	"	"	04:46	04:59	10m	02:17W	"	"	"	"		—	—	—	—	"	"	"	W = 60 km/h T = 12° R.H. 90%
1922	ALLEN 297 C	08 08.1	-61 02	23/24 FEB.	00:34	01:08	30m	01:30E	2"-3" / clear	"	" / 0.8	1 "	~10.8	—	—	—	—	"	"	"	
	" B	"	"	"	01:14	01:23	8m	01:15E	"	"	"	"	~9.4	—	—	—	—	"	"	"	
	" 287 C	07 53.4	-50 52	"	01:31	02:07	35m	01:30E	"	"	" / 0.6	"	11.3	—	—	—	—	"	"	"	R.H. 63% T = 13°C W = 24 km/h
	" 310 B	08 20.3	-71 27	"	03:38	03:39	1m	00:47W	"	"	/ 1.2	"		—	—	—	—	"	"	"	
1923	ALLEN 356 C	09 47.4	-60 57	"	04:15	04:46	30m	00:27W	"	"	/ 0.6	"		—	—	—	—	"	"	"	
	" 375 C	10 30.5	-42 08	"	04:51	05:18	25m	00:17W	"	"	"	"		—	—	—	—	"	"	"	
	" 348 C	09 24.8	-48 11	"	05:23	06:04	40m	02:10W	"	"	"	"	~11.4	—	—	—	—	"	"	"	
	" 397 B	10 54.0	-63 52	"	06:16	06:33	15m	01:08W	"	"	"	"		—	—	—	—	"	"	"	

NUMBER	OBJECT	R.A. 1980	DEC.	1980 DATE U.T. APR	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
1924	IC 2602-36	10 42.9	-64 19	8	01 36	01:37	1m		2-3/CIRRUS	3.34	100/0.8	120/7						IIaD	0-19	F	[illegible] 1
	-37						10s														2
1925	-111				01:59	02:27	26m		2-3 SOME CIRRUS				10.4	AO	NeA	4s					1
1926	NGC 5316-113	13 52.8	-61 49		03:07	05 15	120m		"		100/0.8		11 97								[illegible] T=10 -5
	-112	"	"		05:16	06 22	60	0 52W					11.21								[illegible] -3
	-103				06 22	06 36	14/30	1:02W	CLOUDED OUT				10 62								-1
1927	NGC 5316-124	"	"	4	04 47	05:41	50	0 15W	2-3 CIRRUS [illegible]		100/0 8		11.03					IIaD	0-19	F	T=9 H=[illegible] -5
	-75	"	"		05 44	06 44	60	1:20W	2-3 CIRRUS				11 30								[illegible] -3
1928	NGC 2169-7	06 7.2	+13 57	14/15	23:44	01 26	100m		2-3 CLEAR	"	"	"	11.08					IIaD	0 19	F	T=9, H=[illegible] [illegible] -5
	Hogg 11-A	11 11.4	-60 17	15	01:43	01:45	2m/2	0 38E													CIT -1
	SLS 2224	"	"		01 48	01:50	2/2														[illegible] +1
1929	SLS 2222	"	"		01 51	01 53	2/2	0 36E													+3
1924	Hogg 11-A	"	"		0	04:49	2+05													F	-5,-3
		"	"			04:51	2														-1
		"	"			04 54	2	2 34W													+1
	NGC 5316 71	13 53.4	-61 49		05 12	05:48	36	0.46W	1" CIRRUS 1'S NR HORIZ				10.73								T=11 H=57 [illegible] +5
1930	NGC 6353-4	17 33.8	-32 39		06 11	10 05	4h	0 24W	" "	"	100/0 8	"	~3 3								T=11 H=50 W=40 [illegible] -3
1931	NGC 2353-106	07 13.7	-10 21	15/16	23 53	00 55	60m		1-2	"	"	"	11 1								T=13 [illegible] W=52 [illegible]
	-113			16	00:58	02 14	70	3:54W	2				11 2								-3
	Hogg 10-4	11 10 7	-60 18		02 24	04:25	110	2:05W	2				12.2								T=[illegible] H=[illegible] -1
1932	NGC 4463-14 2692	12 28.4	-64 40		04:38	06:18	90						12.0								-5
1933	-11	12 28.6	-64 42		06:30	07:00	24	3:28W	2'				10 37								-5
	-13				07:02	07:26	20						10 27								-3
	NGC 6363-4	17 33 7	-32 39		07 36	08 06	30						10 37								+1
	-138				08:08	10:00	110	1:22W	2"				12.05								T=[illegible] H=5 W=40 +3
1934	NGC 2353-116			18	00 36	01:16	40/70		1-2" CLOUD				11 5								T=13 H=38 W=40 -5
1935	NGC 5281-5	13 45.3	-62 57	17	05:59	07.44	100		2-3' CIRRUS				11 6								
1936	Bo 4+5-30				23:38	23:40	2/60		2" CLOUD OUT				11.53								-5
	NGC 2670-2	08 46.6	-48 35		02 10	02 14	6/3m		"				8.53								T=16 H=30 W=44 -1
	NGC 6193-6	16 41.0	-48 43		04:17	04:47	30/20		2-3" CLOUD				10.3								+1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1936	NGC 6193-7	16 40.9	-48 50		04:48	05.02	14/10		2-3 CIRRUS	3 34	100/0.8	120/7	9.6					IIa-D	D-19	F	#3
	-7				05:00	05.04	4	2 27E													#4
	-15				05:07	05:36	26		"	"	"	"	10.5N								#5
	-8				05:40	05:58	16														T=15, W=20, H=28 #6
1937	-20				06.15	07.03	48/34		2-3 CLOUD	"	"	"	~10.8								(Hazed) -5
1938	ζ Pup	08 03.0	-39 57	20/21	23:36	2338	3,6,12/2,5	2:46W	1.5 clear	3 35	100/0.8	120/7	2.0	C5f	NeA	10J	NONE	IIa-O	MtP L	N-1	Hazed C T3 H L3
	HR 4523	11 46.0	-40 24	MAY 1980	23.51	23 56	40, 80, 160/46	37mE	1" clear	"	"	"	5.6	G5V					7m 67°F		
	α Hya	09 26.8	-08 35		00 16	00 20	12, 24, 48/18	2:07W					3.5	K4 III							
	HR 3756	09 26.9	-06 00		00.4	00 35	1, 2, 4m / 1.5	2.21W	"				6 0	G2V							
	Ganymede	10 14.5	+12 13		0046	0050	40, 80, 160/160	1.49W	"				5.4:	G2							
	α CEN A	14 39.6	-60 46		0057	0059	1, 2, 25/<1	2.27E	"				0.7	G2							W.S T3.5 H5.5
1939	HR 5183	13 46.6	-66 28	"	0203	0220	2, 4, 8m / V	15mE	2-3"	"	"	"	6.9	G.C	"	"	"	"	"	"	
	RT CEN	13 47.7	-36 46		0240	0450	13m / 180m	2.16W	1" clear				10.5:	Me							Sunspots
	T NOR	15 42.8	-54 54		0459	0521	22m / 15	50mW	2" clear				8.5:	Me							
	RS Sco	16 54.3	-45 04		0612	0658	46m / 40	1:18W	2" "				9:	Me							W1.5 T9° H48
	W PAV	17 51.0	-62 20		0707	0727	140m / ✓	2.50W	2" "				10.5:	Me							W1.5 T10 H40
							ADJUSTED SPECTROGRAPH — FOCUS SLIGHTLY DIFFERENT														W: T1.5 H 34
1940	RT CEN	13 47.0	-36 44	21/22	0105	0129	24m / 15m	1:01E	1° clear	3.30	100/.8	120/10	10.5:	Me	NeA	1S	NONE	IIa-D	M-1	N-1	Sunspots
	R CEN	14 15.3	-59 51	MAY 1980	0144	0159	24, 48m / 24	51mE	"				~11:	Me					15m 72°F		
1941	R CEN	"	"	"	0251	0256	4m / 3	1mE	"	"	"	"	"	"	"	"	"	"	"	"	67°F
	RT CEN	13 47.0	-36 44		0302	0326	24m / 20	50mW	"				10:5	"							
	T NOR	15 42.6	-54 56		0332	0339	24m / <1	47mE	"				8.5:	Me							W1.5 T5 H30
	RS Sco	16 54.1	-45 04		0347	0356	36 / 2	1:40E	"				9.5:	Me							
	RR Sco	16 55.0	-30 30		0456	0550	54m / 15	19mE	"				11:	Me							
1942	RU Sco	17 40.8	-43 43	"	0622	0751	89m / 30m	1.28W	"	"	"	"	12	Me	"	"	"	"	"	"	
	W PAV	17 48.4	-62 20		0759	0824	25m / 20m	1.54W	"				10.5:	Me							
1943	RR CAP	21 00.8	-27 10	"	0845	1033	168m / 50m	51W	"	"	"	"	12.5:	Me	"	"	"	"	"	"	
1944	T Col	05 18.6	-33 43	22/23	2319	0009	50m / ✓	6:11W	"	"	"	"	12.5:	Me	"	"	"	"	"	"	
	RV Pup	06 42.6	-42 21	MAY 1980	0619	0659	20m / X	5:18W	1" /				10.5:	Me	this star out of focus completely — not centered?						
	W Pup	07 45.4	-42 09		0100	0124	24m / ✓	5:W	"				11.	Me							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
																					WC T 13°C H 30
F145	AS Pup	08 08.7	-38 07	24/25	C148	C214	28m ✓	5.28W	2"/clear	3.30	100/1.8	120/T/70	11:	M6	NeA	1s	Ne	D	M-S		wrong star -B2
	SS 1024	08 14.7	-49 08	MAY 1986	0227	0243	5+10m 10m	5.49W	2" "				9.5	WD?					1.5m		
	RWCAR	09 19.5	-68 40		0249	0312	24m 30m	5.14W	"				11:	M6							
	R CAR	09 32.0	-62 41		0325	0333	8m ✓	5.22W	"				9.5:	M6							
	S CAR	10 09.0	-61 26		0341	0343	1.5 ✓+3m	4.55W	"				7.	M6							
	RT CEN	13 47.4	-36 45		0359	0414	15m 25m	1.47W	1"				10.5:	M6							
	T NOR	15 43.5	-54 56		0418	0419	4s 1.5	2.0	1"				8.0	M6							
1946	AS 231	17 29.0	-33 44	"	0356	0433	1h33m 1h50m	1.26W	"	"	"	"	12.4	A?	"	"	"	"	"	"	=CD-33°12119 See information Burbidge Vol 81 #1672
1947	SH 2-71	19 41.0	+02 10		0410	1022	2h12m 5h	2.44W	"	"	10"/.4	"	14.5	B?	"	"	"	"	"	"	
1948	R RET	4 33.3	-63 04	24/25	2312	0048	4h 3h	7.40W	2" clear	"	100/.8	"	13.5:	M6	"	"	"	"	"	"	WC T 12°C H 30
	RV PUP	6 41.9	-42 21	MAY 1986	0057	0119	22m ✓	6.61W	2-3/clear				12.5:	M6							ID OK this time
	AS PUP	08 09.0	-38 03		0127	0153	26m 45m	5.68W	3" "				11:	M6							ID OK this time
	RT CEN	13 47.4	-36 46		0157	0225	28m ✓	0.03W	2"/clear				10.5	M6							
F14	=HR 4438 HD 100198	11 30.7	-61 10	"	0247	0249	3m 81m 120s 40s	2.45W	"				(7)	A3I...a							make it out
	HR 4876	12 50.6	-60 12		0259	0303	15m 40s 20s 45s	1.38W	"				6	A2Ia							
	HR 4966	12 38.0	-67 04		0312	0315	12m 24s 45s	2.02W	"				6.3	B1Ia							
1950	RWCAR	09 19.5	-68 39	"	0333	0404	3m ✓	6.10W	"	"	"	"	11.	M6	"	"	"	"	"	"	
	S CAR	10 08.6	-61 26		0409	0413	3m 2m	5.36W					7	M6							
	R CEN	14 15.4	-59 49		0421	0425	4s ✓	1.35W					9:	M6							
	T NOR	15 42.5	-54 56		0430	0432	15s ✓	1.5mW					8.	M6							
	RS Sco	16 54.4	-45 05		0529	0532	3m ✓	3mW					9.5	M6							
1951	SH 2-71	19 00.7	+02 08	"	0620	1020	4h ✓	2.45W	"	"	"	"	14.5	B?	"	"	"	"	"	"	WC T 14 H 26
F152	CH Pup	08 44.3	-36 32	24/25 MAY 1986	2321	0113	1h52m 2h	5.57W	1.5 curvy	"	"	"	13.5?	M6	"	"	"	"	"	"	WC T 13 H 27 Contam w/ cirrus? Before 10th dark
	AS Pup	08 09.0	-38 03		0120	0210	52m 60m	5.30W	"				11.5	M6							
1953	RS Cen	11 19.7	-61 45	"	0240	0535	140m ✓	5.45W	1.5 clear/cirrus/gain	"	"	"	13.5	M6	"	"	"	"	"	"	ID on slew pos'n'd
1954	RR Sco	16 58.4	-36 30		0502	0607	25m 20	1.07W	1.5 clear				11.	M6							
	RU Sco	17 41.1	-42 45		0642	0738	56m 45	1.26W	"				12	M6							
	W PAV	17 46.6	-62 25		0744	0815	31m 25	1.56W	2-3/clear				10:	M6							
1955	AS 231	17 29.0	-33 44	"	0835	1033	1h58m ✓	4.35W	1.5/clear				12.5	A?							WSTA H 25

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC	OBJECT	R A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1956	SS1024	0814.7	−49 08	25/26	2314	0126	90m 40m ✓	4.35W	1" clear	325	100μ/6.8	120/7.0	9.5	B	Neb	10s	Nil	IIa-O	Mk P2	2	CD −48 3636
	Comp #1	"	"	MAY 1980	0127	0142	15m ✓	5W	2.3" clear				8.5:	?					7min L+F		nearest
	" #2	08 14.9	−49 01		0144	0155	10m 15	5 13W	" "				8:	?							Cyclones around entrance
	#3	0815.5	−49 01		0156	0207	10m 12						8:	?							"
	#4	0815.2	−4904		0208	0219	10m ✓	5:37W	" "				8:	?							
	RR CAR	0957.4	−58 46		0235	0437	2h ✓	6:12W	" "				10:	M6 S							Z Comp Δv −4
	HD157881	17 24.7	+02 10		0537	0628	50m ✓	38m W	1" clear				8.9	K5 V							Bright ? ? Cloud SW ↑
1957	T Oct	21 13.7	−82 13	4	0654	0741	42m ✓	1h 59E	2" clear	"	1T		11.5:	M4	Neb	1s		II-D	IM-S		
	T Tuc	22 39.4	−61 33		0758	0825	27m ✓	2 39E	"				11:	M6					15 mm C 2 F		
	T Gru	22 24.1	−37 39		0832	0857	25m ✓	1 53E	"				11	M6							
	T Scl	00 27.8	−38 00		0906	0930	1h 24m ✓	2h 26 E	"				12	M6							
1958	SS1024	0814.2	−49 08	26/27	2343	0047	64m ✓	4 09W	2" clear	"	100μ/6	120/7.0	9.5	B	Neb	1s		IIa-C	MMT 2m L+F		
	" #2	0814.3	−49 02	MAY 1980	0049	0109	21m ✓	4 32W					8.5:	?							
	" #3	08 14.8	−49 02		0111	0126	15m ✓	4 48W					8.5	?							
	R CAR	0931.8	−62 38		0143	0213	30m ✓	5 18W	2-3" clear				9.5:	M6							
	S CAR	10 08.7	−61 27		0221	0354	20m 10 ✓	5 22W	3" clear		100μ/6.8		7.	M6							
	T Nor	15 42.7	−54 55		0359	0420	21m 15	14m W	2" clear		"		8	M6							
	R Cen	14 15.1	−59 51		0520	0600	1h ✓	3:42W	"				9	M6							
	HD154276	17 03.0	+17 21		0636	0740	64m ✓	2:15W					9.7	G2 V							
	+15°3364	18 06.3	+15 58		0744	0838	54m ✓	2 10W					9.3	G							
	RS Sco	16 54.2	−45 04		0844	1031	1h 7m 60m	5:14W	"				9.5:	M6							T1 H&K
1959	HR2290	06 19.7	−48 44	27/28	2315	2223	8m ✓	4:44W	1.5 clear	"	"	"	7.2	G6	"	"	"	"	"	"	W Tic H&K
	HR2354	06 24.4	−63 27	MAY 1980	2338	2347	8m ✓	5:3W					7.1	G6							
	HR2665 (A)	07 05.3	−43 38		2353	2359	6m 4.5	4:36W					5.6	G3V							
	HR2665 (B)	07 03.4	−43 38		0000	0012	12m ✓	4:50W					7.6	G0:							
	HR2318	06 24.0	−28 57 (?)		0015	0028	13m ✓	5:43W					7.3	G5							
	HR2882	07 36.6	−37 21		0029	0039	10m ✓	4:49W					7.3	G5							
	HR3138	07 57.6	−60 26		0043	0047	3.5m ✓	4:30W					6.2	G2							
	HR3538	08 53.4	−05 33 (?)		0051	0057	5m ✓	3:42W					6.7	G3							
	Collinder Cyngnus 1	19 16.5	+11 51		0114 0115	0115 0116	1m / WC 30s / 1m	2.42W					5.6 4.6	G2 G2							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
(cont) 1951	URANUS	15 22.6	−18 16	27/28	0124	0124	1.5 m ✓	2.17 w	1.0 / clear	3.25	100 m / 0.8	120 / 7.6	5.7	G2 V	NaA	10 s		IIa-O	1 Mar 52 2m 6x7		
	HR 3750	03 26.8	−06 03	1949 1950	0132	0134	2m ✓	3.48 w					6.6:	G2 v							
	HR 4523	11 45.7	−40 28		0138	0140	1.5 m ✓ 1m						5.6	G5 V							
	HR 5153	13 46.6	+06 24		0150	0155	5m ✓ 45s 1m E						6.9	G0							
	RCrB	15 31.8	−36 45		0204	0244	4m ✓ 30s 4h 52m W						9.5:	M5							
	HR 4975	13 19.3	−55 49		0314	0316	30s 1m 15s ✓ 30s						4.5	B8 V							
	HR 5540 (HD 133955)	14 57.1	−76 28		0322	0400	30s 1m 15s ✓ 30s 44m W						6.7:	M0							
	HR 5384	14 22.3	+01 20		0415	0420	5m ✓						6.9	G3							
	HR 5911 (39 Ser)	15 52.2	+13 11		0426	0430	4m ✓	20m W					6.7	G2							
1960	HR 5996	16 05.8	−14 01	"	0531	0536	5m ✓						7	G4							
	HR 6166 (155 Oph)	16 14.3	−03 19		0539	0542	2.5 ✓	1h 8m W					6.2	G1							
	K Ser	15 40.7	−17 36		0546	0600	2, 4, 8m ✓	2h 2m W					6.3	K5							
	ν² Sgr	15 41.4	−34 39		0605	0608	30s 1m ✓ 30s	2 s W					4.6	B6							
	[illegible] (HR 6211)	16 06.3	−57 44		0612	0614	25s 50s 1m ✓ 50s	1 s W					4.9	A5							
	ρ Nor	16 03.2	−45 08		0620	0624	25s 40s 1m ✓ 40s	2h W					4.9	B2							
	ζ¹ Sgr	16 15.3	−75 37		0632	0652	3.5m 12m ✓	2 16m W					6.4	M4							
	ζ² Sgr	16 17.8	−75 35		0655	0701	6m ✓	224m W					6.6	K5							
	ε Sco	16 18.8	−34 06		0705	0713	40s 60s 12m ✓ 60s						5.4	A5							
	ξ Sco	16 54.2	−45 01		0714	0815	6.1m ✓	3h 3m W					9.5	M2							
K61	ε Nor	16 23.5	−47 22	"	0825	0832	15s 30s 60s ✓	3 48 W					4.4	B3							
	ν Pav	18 29.0	−62 16		~~0844~~	~~0848~~	15s 30s 60s ✓						4.5	B8							
	HR 7644	20 04.1	−67 25		0844	0848	4m ✓						6.7	G2 V							
	HR 7260	19 06.7	+16 48		0857	0901	5m ✓						6.5	G5							
	15 Sge	20 02.7	+17 00		0904	0907	2.5 ✓						6.4	G1							
	κ Del	20 37.8	+10 02		0910	0912	1.5 ✓	15m W					5.3	G5							
	HR 8042A	21 00.9	−43 05		0919	0924	5m ✓						7.0	G3							
	" B				0925	0941	15m 12m ✓	22m W					8:	K5							
	HD 202628	21 17.2	−43 25		0944	0952	8m ✓	17m W					7.4	G5							
	42 Cap	21 40.3	−14 08		0955	0957	2m ✓ 1m	2h E					5.8	G2							
	HR 8477	22 13.4	−41 29		1000	1004	4m ✓	27m E					6.9	G5							
	HR 8531 H	22 23.0	−57 53				2m ✓						6.0	G0							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
(cont) 1961	HR8700	22 52.6	-48 42	27/28	1011	1015	4m / 3.5	55m E	1" clear	3.25	100µ / 1.8	120 / 7C	6.6	G3	NeA	10s	Fe-Ne / Fe-Ar	IIa-O	Ha-D 7m 6mF	2m	
	HR8701 2nd	22 53 6	-70 06	May 1962	1019	1023	4m /	49m E	"				6.7	G1							
1962	SS 1024	08 14.5	-49 11	25/26	2326	0035	30+30 m / 4m	4:5 W	2" clear	2.55	50µ / 1.2	6.7 / 5.5	9.5	B	NeA	60s	30s m	IIa-O	Ha-D 11-5 6m 6mF 15m	2m	WC T11 H24 partly wrong star WC T1K H2E
	R Car	09 31.8	-62 45	May 1962	0149	0400	2m 15s / ✓	6:15 W	1" clear				9	Me			10 @ 1 15m				
	HR6058	16 15.6	-50 02		0408	0413	5m / 10	18 E	1.5 / clear				4.9	F5 Iab							
	U CAR	10 56 6	-59 38		0525	0546	40m / 60	6:35 W	1.5 / clear				7:	G Cepk							
	S Mus	12 11.6	-70 01		0552	0654	6m / ✓	6:25 W	"				7.6	G Cepk							
	R Mus	12 40 8	-69 17		0657	0733	36m / 60	6:57 W	" / thick clouds, stood				7.5	G Cepk							
	S Nor	16 17.2	-57 56		0750	0820	30m / 40		" / some clouds				7.1	"							
	"	"	"		0821	0859	38m / 50	4.27 W	" / clouds				"	"							
	HD172052	18 37.6	-23 12		0901	0934	30m / 40	2 41 W	" / "				7.1	F5 Ia							
	R TRA	15 18.0	-66 26		0938	1045	6m / 90	7 11 W	2" "				7.7	G Cepk							WC T13 H22
1963	ξ Pup	7 48.4	-24 51	29/30	2312	23:7	2h 48m / 4m	3 27 W	1.5 / fair clouds	"	"		4.6	G3	"	"	"	"	"	"	
	SS 1024	8 14.8	-49 12	May 1962	2333	0158	2h 29m / ✓	5 33 W	" / "		50µ + 3 mm		9.5	B							NOT14 H24
	S Mus	12 12.3	-70 05		0218	0257	49m / ✓	2 34 W	1.5 / fair clouds		1.2		7.4:	G Cepk							
	" Cgl	stopped by clouds after 1 trail																			
	R TRA	15 18.7	-66 27		0333	0436	6m / ✓	1.07 W	1.5 / fair clouds				7.4	G Cepk							
		very thick cirrus rest of night with full moon.																			
1964	R Mus	12 41 0	-69 18	30/31	2333	0033	6m / 90	16m E	1.5 / cirrus				7.4	G Cepk							T12 H25
	R TRA	15 18 1	-66 26	May 1962	0057	0136	39m / 90	1h 56m E	1.5 / cirrus + clouds + bright moon				7,	G Cepk							
	Sky - cirrus + moon		"		0137	0254	1h 17m / —	56m E	—				—	G2 V	no sp						
	H Δ GCH	12 52.9	-59 09		0300	0323	2m / 2	2 22 W	2" / cirrus increasing - stopped				4.5	B5							
	Fog "again	"	"		0344	0348	4m / 3.5	2 48 W	" / cirrus				"	"							
	HR4940	13 04.2	-48 23		0352	0357	4m / ✓	2 45 W	/ clearing				4.6	B5 II							
	HR4975	13 16 2	-59 53		0359	0403	4m / ✓	2 46 W					4.5	B8							
	4 Cen	13 51.9	-31 56		0406	0410	4m / ✓	2 10 W					4.6	B5							
	HR5297	14 08.6	-53 25		0426	0442	16m / ✓	2 26 W					5.7	G6							
	R APS HR 5540	14 56.2	-76 37		0535	0547	17m / 40	2 44 W	1" / clear-fair cirrus				6:	M0							stopped by cirrus
	δ¹ Aps	16 18.6	-78 43		0550	0630	40m / 30	2h 4m W					6.4	M4							
	δ² Aps	16 18.6	-78 42		0631	0716	45m / ✓	2h 58m W					6.7	K5							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
K65	HR5781	15 34.3	-44 58	30/31	0730	0734	4m 3.5	3 53W	2" clear	2.85	50µ/1.2	67/5.05	4.35	B5	~eA	60s	1&1 2.5m	II-O	103-J	3	clear 6-8, -3"
	KZ6	15 40 7	-19 39	May 1980	0738	0826	48m +30	4 39W	2" "				6.3	K5							
	ψ^2 Lup	15 41.4	-34 44		0830	0834	4m ✓	4 46W					4.6	B6							
	ι Nor	16 01.9	-37 47		0837	0843	6m ✓	4 34W					4.9	A5							
	σ^1 Nor	16 04.9	-45 10		0846	0854	7m ✓	4 42W					4.9	A7							
	σ Sco	16 19.3	-24 05		0856	0911	15m ✓	4 45W					5.4	A5 II							
	ε Nor	16 23.7	-47 34		0913	0917	4m ✓	4 46W					4.4	B3							
	ν Sco	18 29.6	-37 21		0920	0924	4m ✓	2 48W					4.0	B8							No T12 H 25
	HD172052	18 37.6	-23 14		0927	1.26	5½m ✓	3 42W					7.1	F5 IV							Sgr Cluster
	HR3232	21 30 3	-05 54		1032	1040	4m 30s 80	1h W					3.9	G6 IV							
1966	HR2667	07 03.0	-43 36	31 May	0326	0005	31m 25	4 58W	2" [illegible]				6.4	G3							Not T13 H 34
	HR2882	07 29 7	-37 22	1 June 1966	0000	0002	5½m ✓	5 28W	"				7.3	G5							
	Jup IV	10 18.3	+11 43		0807	0859	32m 60	3 18W	"				6.3	G2							
	Jup III	10 18.2	+11 42		0845	0858	13m 25	3 36W	"				5.3	G2							
	HR3138	7 57 3	-60 15		0908	1-38	30m ✓	6 55W	"				6.2	G2							
	HR5183	13 45.7	+06 26		0245	0334	41m ✓	1 44W	" Cirrus thickening				6.9	G6							
	HR4523	11 45.4	-40 23		0337	0351	14m 12	4h 1m W	1.5 "				5.6	G5							
	HR5540 ε Aps	14 56.6	-76 36		0356	0442	46m 60	1h 43m W					7:	M0							
	R Vir	12 41.0	-6.9 17		0529	0533	6h 7m 120	5h 50m W	1.5 cirrus-thickening ~0.5-1m				7.5	G8 pk	Liquid Cl						
Mch	Jup IV	10 18.6	+11 35	1/2	2325	0027	62m ✓	2h 01m W	3" passing				6.3	G2 V							No T12 H 30
	HR3750	9 26.9	-66 08	March 1966	0033	0105	32m 20	5h 38m W	3" "				6.0	G2							
	HR5072 ε Hya	13 22.3	+13 50		0110	0140	30m 20	12m W	3" "				5.7	G5 ✓							
	α Crv	12 53.6	-23 04		0145	0149	4m ✓	55m W	"				4.5	B5							
	RAps HR5540	14 57.3	-76 35		0155	0325	90m ✓	24h W	"				7:	M0							No T15 H 28
	RAnCas	15 21.8	-18 12		0330	0430	60m 50	1h 12m W	"				6.3:	G2 II +							
	R Vir	12 41.2	-6.9 17		0515	0535	30m 50	5 55W	"				7.3	G pk							
	K Lib	15 40 8	-19 39		0640	0709	29m ✓	3 21W	"				6.3	K5							
	HR7266	19 07 1	+16 46		0716	0750	40m ✓	4h 19W	"				6.8	G5							
	HR5781	15 34.6	-44 53		0802	0806	35m ✓	4 31W					4.4	B5							
	KDel	20 38.1	+10 00		0810	0816	15m ✓	10h W					5.7	G5							
1968	TNor	15 42.8	-54 55		0848	1028	1h 40m 36	6 42W 2-3"					8	M6							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1969	T Nor	15h 42m.5	-54° 56'	16/17 June/Sept	05 32		24" / 36" / 48"	2h 50m	2½" / haze	3.23	100μ / 3.6	120 / 7.0	~6.3	F-G					F-1		
	RR Cap	21h 0m.3	-27° 10'	"	06 7	06 34	17" / 15"														
1970	X Sgr	17h 46m 03s	-27° 49' 8	23/24 June	05 10		20s / 45" / 1m	1h 45m	3' / haze	3.23	100μ / 6.3	120 / 7.0	~5.3	F-G							
	S TrA	15h 51m 25s	-63° 43' 7		~~05 [illegible]~~	06 32	3.5 / 6s / 12.5	54m [illegible]	3' / haze	3.23	117μ / 6.3	120 / 7.0	~7.2	G-E							
1971	S TrA	15h 59m 20s	-63° 43' 7	25/26 June	07 17		40s / 80s / 120s / 20s / 40s / 60s		4" / haze	3.23	100μ /	120 / 7.0			NeAr	2s					
	X Sgr	17h 46m 18s	-27° 49.8	"	07 08	07 25		5h 0m													
	T Nor	15h 42m.5	-54° 56'		07 13	07 30		3h 05m													
R72	RT Cen	13h 17m.2	-56° 4.6	24/25 June	01 32	01 53	20m / 25m / 2m / 5m / 10m	1h 45m	3' / haze	3.23	100μ / 6.6	120 / 7.0	~4.5	M6							
	RS Sco	16h 54m.2	-45° 6.6'		02 50	03 05	10m / 40s / 20s	0h 15m					~4.5	M6							
1973	X Sgr	17h 46m 18s	-27° 49'8	"	03 50	03 55	40s / 100s / 150s / 200s	0h 10m	"		100μ / 6.3	120 / 7.0									
	S TrA	15h 59m 20s	-63° 43'.0		04 03	04 11		2h 05m													
1974	X Sgr	17h 46m.3	-27° 49.8	27/28 June	05 28	05 30	25s / 50s	1h 30m	2½" / haze	3.23	100μ / 6.3	120 / 7.0									Refr. 2
	S TrA	15h 59m 20s	-63° 43'.7		05 34		50s / 100s														

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTROGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
1975	X Sgr	17h46m18s	-27°49'8	28/29 June	C1 21		20s		3' / Cr	3.23	100μ / 0.5	120/70	~5	F-5	Ne Ar	2s			M-2	Fid	
						C1 23	40s	2h35m													
	S TrA	15h59m20s	-63°43.7		C1 41		30s						~9	G-5							
							60s														
						C1 48	120s	0h35m													
1976	X Sgr	17h46m18s	-27°49'8	[illegible]	C1 23		185s		4" / Cr						Ne Ar	2s			M-2		
					~~C1 23~~		36s														
						C1 33	34s	0h35m													
	S TrA	15h59m20s	-63°43.7				[illegible]														
					C1 49		60s														
						C1 51	[illegible]	0h15m													
1977	S TrA	15h59m20s	-63°43.7	[illegible]	C1 34		30s	[illegible]							Ne Ar	2s			M-2	H1/W2	
							60s														
						C2 40	120s	0h35m													
	X Sgr	17h46m18s	-27°49'8		C2 52		30s	[illegible]													
						C2 54	45s	0h55m													

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP./LST BEGIN	U.T. EXP./LST END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	ROOM ~~CALIB~~	EMUL	DEV	OBS	REMARKS
1978	AC MIC	21 43 55	-31 24 35	05/06/78	03 30 00 14 42 33	04 14 00	47/150		2"/clr	320	100μ/0.8	12°/T	B MAGS 10.3	Flare M	NeA	10^5	12	IIaO	Mw/2	CRW/NVZ	T=2°C, H=75%
	"	"	"	"	04 23 00 20 35 41		TOO WEAK	very streaky	"	"	"	"	"	"			14	"	"	"	
	"	"	"	"	04 53 00 21 05 47	05 45 30	WEAK 55½		"	"	"	"	"	"			16	"	"	"	SPOT SENSITOMETER CALIBRATION 14V, 30min
	"	"	"	"	05 58 00 22 11 00	07 45	GOOD 110	ST 00 01 16 HA 03 12 00		"	"	"	"	"			15	"	"	"	
	HD197339	20 42 51	-32 00 05 ~~-30 16 07~~	"	05 52 00 01 15 18	05 54 30	SL STRONG 42½/37			"	"	"	8.69	K2			2	"	"	"	
	HD198142	20 48 04	-30 11 01	"	05 51 00 01 04 26	09 37	~~46~~ 55/~~120~~ 140	ST ~~20 42~~ HA ~~5 17~~		"	"	"	8.78	K5	NeA	10^5	22	"	"	"	T 4°C, H=45%
1979	χ Z CEN	12h 23.2m	-35° 31'	06/08/80	00 23 00 16 38 50	01 14 00	WEAK 51/50	need H+K	2"/clr	"	"	"	V MAGS ~9	M5	NeA	10^5	6	"	"	"	T=6°C, H=47%
	R CEN	14 15.2	-59 49	"	02 13 00 18 29 05	02 17 27	WEAK 1,2/2.6	need H+K	"	"	100μ/0.6	"	~5.8	M4e-M7IIIe			8,9	"	"	"	
	"	"	"	"	02 18 30 18 34 36	02 26 30	WEAK 3,4/2.6		"	"	"	"	"	"	NeA	10^5	10,11	"	"	"	
	RU SCO	17 41.0	-43 45	"	03 02 00 19 18 14	03 57 00	EXCELLENT 55/50		"	"	"	"	~9	M7III-IIIe			14	"	"	"	SPOT SENSITOMETER
	RR SGR	19 54.8	-29 15	"	04 35 00 20 51 29	04 54 30	EXCELLENT 6 1/2/8		"	"	100μ/0.8	"	~7	M5e-M6e			16,17	"	"	"	FOR EXPOSURES, ASSUME THAT B-V ≅ 1.2
	"	"	"	"	04 55 30 21 12 00	05 04 05	GOOD 8½/8		"	"	"	"	"	"	NeA	10^5	18	"	"	"	
	S MIC	21 25.6	-29 56	"	05 46 00 22 02 40	06 47 16	WEAK 61/60	need H+K	"	"	"	"	~9.2	M3Se			21	"	"	"	
	T TUC	22 39.3	-61 39	"	07 04 00 23 30 54	07 41 00	WEAK 37/32		"	"	"	"	~8.5	M3IIe-M6IIIe	NeA	10^5	23 (W)	"	"	"	
1980	V PHE	23 31.4	-46 05	"	08 31 00 00 48 03	09 36 00	SL WEAK 65/60		"	"	"	"	~9.2	M4e	NeA	10^5	6	"	"	"	T=8°C, H=41%
	57 PEC	00 45.5	+15 22	"	09 43 00 02 00 18	09 46 40	WEAK 1,2/1.8		"	"	"	"	5.38	M4IIIa			10,11	"	"	"	SPOT SENSITOMETER
	"	"	"	"	09 47 00 02 04 20	09 50 00	NEED H+K 3/1.8		"	"	"	"	"	"	NeA	10^5	12	"	"	"	
	45 RZ ARI	02 54.7	+18 16	"	09 54 30 02 11 51	10 00 00	WEAK 2,3/2.9		"	"	"	"	5.9	M6III			15,16	"	"	"	
	"	"	"	"	10 00 30 02 17 52	10 05 00	GOOD 3½/2.9		"	"	"	"	"	"	NeA	10^5	17 (W)	"	"	"	T=8°C, H=40%
1981	HR 5171A	13h 45.8m	-62° 29'	AUG 7/80	23 58 16 18	00 30 16 50	6,9,12/		3"/CLEAR	320	100μ/0.8	120/2.0	6.8	G8 Ia-O	NeA	10^5	8-10	IIaO	67°,7m MWP-2	CW	T=6°C, H=37%
	BM SCO	17h 39.7m	-32° 13'		00 45 17 05	1:00 17:20	2,4,6/	0h 20m E					6.2V	K2.5Ib	NeA	10^5	12-14				
	AX Sgr	18h 07.3m	-18° 33'		1 09 17 29	1-49 18:09	8,12,16/	0h 02m W					7.4V	G8Ia	NeA	10^5	17-19				
1982	AU Mic	20h 43.9m	-31° 25'		2:20 18:40	4 05 20 25	105/	0h 18m E	2"/CLEAR				B MAGS 10.3	FLARE M(M0)	NeA	10^5	9				SPOT SENSITOMETER
	AU Mic	"	"		04:11 20 34	05:56 22:17	105/ ~~2350~~						"	"	NeA	10^5	10				
	HD 197359	20h 42.8m	-32° 00'		06:07 22:27	06:42 23:03	35/	2h 20m W					8.69	K2			14				
	HD 198142	20h 48.1m	-30° 16'		06:49 23:10	07:30 23:51	40/	3h 03m W	1"/CLEAR				8.78	K5			16				
	AU MIC	20h 43.9m	-31° 25'		7:37 00 23 58 09	08:52 01:13	75/						10.3	FLARE M0			18				
	HD 197237	20h 42.7m	-31° 38'		09 07 00 01 28 10	09:57 02:18	50/						9.8	K0	NeA	10^5	21				T=7°C, H=20%

NUMBER	OBJECT	R.A. 1980	DEC 1980	DATE U.T. 1980	U.T. EXP./S.T. BEGIN	U.T. EXP./S.T. END	TOTAL / CORR.	H.A. END	SEE./TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG V MAGS	SP.	COMP KIND	COMP EXP	CALIB Pos.	EMUL	DEV	OBS	REMARKS
1983	R CAR	9 31.7	-62 42	Aug 6-8	23 41 00	23 48 20	2¼/		1"/clr	3.20	100µm/0.8	120 A/mm 7.0	~5	M4e-M8e	NeA	10^5	7,8	IIaO	MWP-2 67°, 7m	Crw/Wiz	T=8°C, H=3%
	"	"	"	"	16 04 34																
					23 50 00	23 58 00															
					16 13 35		(8) / ✓		"	"	"	"	"	"	"	"	9	"	"	"	
	R CEN	14 15 2	-59 49	08/08/80	01 00 00	01 15 30	6,8/		"	"	"	"	~5-8	M4e-M7IIe			11,12	"	"	"	
					17 23 47																
	"	"	"	"	01 17 00	01 29 00	(12) / ✓	need H&K	"	"	"	"	"				13	"	"	"	
					17 40 49	17 53															
	RO SCO	$17^h 41.^m0$	-43°45'		1 43	3:17	90/94	$2^h 00^m$ W					8.5	M7II-IIIa			15				
					18 07	19:41															
	RR SGR	19 54.8	-29 15		03 45 15	4 11 45															
					20 10 00		26½/ ✓						~7	M5e-M6e			17				
	T TUC	22 39.3	-61 39		05 10 00	06:15															
					21 34 28	22:40	65/	2h00m W					~8.1	M3IIe-M6IIe	NeA	10^5	19				
1984	R RET	4 33.3	-63 04		08 14 00	09:35															
					00 38 58	01:00	80/ ✓						~8.5	M4e	NeA	10^5	8				
	57 PSC	~~0h45.m5~~	+15°22'		9 48	9:54															
					2 13	2:19	6/ ✓	$1^h 34^m$ W					~5.4	M4IIIa			11				
	45 RZ ARI	$2^h 54.^m7$	+18°16'		~~9 09~~ 10:02	10:11															
					~~2:24~~ 2:27	~~2:36~~ 2:34	8½/ ✓						~5.9v	M6III			13				
	f Per	$3^h 03.^m9$	+38°46'		10:16	10:24															
					2:41	2:49	1,2,4/ ✓						~3.2-4.1	M4II	NeA	10^5	15,16,17				T=8°C, H=26%
1985	Q APS	14 03.5	-76 42	08-09 08/80	23 45 00	00 03 00	18/ ✓		1"/clr	3.20	100/0.8	120 /7.0	5.8-6.7	M6.5III	NeA	10^5	10	IIaO	MWP-2 67°, 7m	Crw/Wiz	T=8°C, H=30%
	EV VIR	14 12.0	-13 46	9/09/80	16 35 35																
					00 07 00	10 37 00	30/	$2^h 53^m$ W					7.2	M4-4.5II-III			12				
	~~RX~~ BOO	~~14h~~ ~~23.3~~ ~~42.5~~	~~+25~~ ~~47~~ ~~+26~~ ~~36~~		00 46 00	01:48															
					17 30 40	18:14	60/						7.0-9.1	M7S-8			14				
	α' HER	17 13.8	+14 24		01 52 00	01 54 30															
					18 19 52		½/ ✓				100/0.6		3.1-3.9	MSIb-II			16,17				
	"	"	"		01 55 00	01 57 15					100/0.8		"	"			18				
					18 22 52		2½/														
	X4 LYR	18 37.5	+39 39		02 03 10	~~02 08~~	10½						5.8-6.8	M4-M5II			20,21				
					18 31 04		2½/ ✓														
	δ^2 LYR	18 53.7	+36 52		02 42 30	02 49 15							4.30	M4II			23,24				
					19 10 30		2½/ ✓														
	V450 AQL	19 32.8	+5 25		02 55 00	03 19 30							6.3-6.9	M5-5.5III			25				
					18 23 02		20½/ ✓														
1986	HD179315	19 11.0	+4 19		03 50 00	04 47 00							7.7-7.9	K2			7				
					24 18 11		5?/ ✓														
	179152	19 10.3	+4 09		24 51 00	05:14							7.5	G5			9				
					21 19 20	21:44	23/ ✓														
	β AQR	21 30.5	-5 40		05 23 00	05 25 00							2.58	CO Ib			11,12,13				
					21 51 27		10,20,30/ ✓														
	ε PEG	21 43.3	+9 47		05 29 00	05 31 00							2.40	K2Ib			15,16,17				
					21 57 28		7,14,25/ ✓														
	α AQR	22 04.7	-0 24		05 35 00	05 38 00							2.93	G2Ib			19,20,21				
					22 03 29		12/ ✓														
	9 PEG	21 ~~41.5~~ 43.6	+17 15 +22 29		05 46 30	05 50 40							4.32	G9Ib			23,24				
					22 15 00		1m/ ✓														
	12 PEG	21 45 3	+22 51		05 53 10	06 00 00	2,4/						5.29	K0Ib			25,26				
					22 21 31																
1987	EP Aqr (RZ PSA)	$21^h 45.^m6$	-2°18'		07:10	07:25							6.4-6.8	M7III	NeA	10^5	9,10				
					23:39	~~23:44~~ 23:47	15,25/	$2^h 36^m$ W													
	57 PSC	$0^h 45.^m5$	+15°22'		08:00	08:14							5.4	M4IIIa			12				
					00:29	00:42	12/ ✓														
	D6 Eri	$4^h 19.^m8$	-16°52'		08:24	08:32							7.0	M4III			14				
					00:53	01:25	30/ ✓	$2^h 55^m$ E													
	T Col	$5^h 18.^m6$	-33°44'		09:17	10.01							7.5	M4e-M6 MIRA	NeA	10^5	16				T=9°C, H=20%
					01:46	02:30	40/ ✓														

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 281

GARRISON CLASSIFICATION SPECTOGRAPH

✓ GOOD ✓✓ EXCELLENT

NUMBER	OBJECT	R.A.	DEC.	DATE UT	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR	~~H+K END~~ QUALITY	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. V	SP.	COMP. KIND	COMP. EXP	~~CALIB~~ POSN	EMUL.	DEV.	OBS.	REMARKS
1988	R CEN	14 15 2	-59 49	09/08/88	23 17 00 / 15 48 23	3 47 30	30½/✓	H+K exposed	3"/clr	320	100µ/06	120/7.0	~5.8	M4e-M7IIe	NeA	10^5	9	IIaO	MWP-2	crw/wiz	T=10°C, H=26%
	RX BOO	14 23.3	+25 47		23 56 00 / 16 27 30	1 08 / 17:40	72/✓		1"/clr				7.0-9.1	M7S-8	NeA	10^5	11				
1989	RX CEN	13 50.3	-36 51	10/08/88	02 07 30 / 18 21 22	~~02 10 30~~ 03 00 00	5½/		2"/clr	3.23	100/06	120/7.0	9.9	M5e			-5	IIaO	M-S		No Filter !!
	RU SCO	17 41.0	-43 45		03 12 00 / 19 44 01	03 32 00	20/	OVERLAPPED ORDERS (NOT USABLE)					~8.5	M7II-IIIe			-3				
	RR SGR	19 54.8	-29 15		04 05 00 / 20 32 10	04 12 00	2,4/						~7.0	M5e-M6e			+1,+2				
	"	"	"		04 13 00 / 20 45 11	04 19 00	6/						"	"			+3				
	RR CAP	21 01.2	-27 10		04 38 00 / 21 10 15	04 55 00 / 23 10 35	120/						~10.8	M5e-M6e			-1				
	S MIC	21 25.6	-29 56		04 46 00 / 23 18 38	07 16 00	30/						~9.5	M3e			+5				
1990	T TUC	22 39.3	-61 39		08 05 09 / 00 37 56	08 17 00	12/✓	H+K sl weak					~8.3?	M3IIe-M6IIe			-5				
	V PHE	23 31.4	-46 05		08 21 10 / 00 54 03	08:52:30 / 01:25:30	31/✓✓	1h53m W					~9.2?	M4e			-4				
	S SCL	0h14.m4	-32° 09'		09:00 / 01:33	09:31 / 02:04	31/✓✓						~9.5	M3e-M8e	NeA	2^5	-2				
	W ERI	4h10.m7	-25°11'		09:44 / 02:17	10:03 / 2:36	19/✓✓						~9?	M7e			-1				
	R RET	4h33.m3	-63°04'		10 10 / 2:43	10 22 / 2:55	12/✓	H+K weak					~8.5	M4e			+1				
	T COL	5h18.m5	-33°44'		10 25 / 2:58	10 31 / 3:04	6/?						~7.5	M4e-M6	NeA	2^5	+3				T=10°, H=2%
1991	R CAR	9h31.m7	-62°42'	AUG 10-11	23:34 / 16:09	22 44 20	1,2/36	2m TOO STRONG 1m GOOD	1"/CLEAR	3.23	100µ/06	120/7.0	~5	M4e-M8e			-5 to -3	IIIa-D	M-S	Cru/wiz	T=10, H=23%
	S CAR	10h08.m7	-61°27'		23 50 00 / 16 25 25	05 20	15/13	SL-STRONG GOOD (H+K)					~8.3	K7e-M4e	NeA	2^5	-1				
	RZ CAR	10 35.1	-70 37		00 43 10 / 16 49 34	1:15 / 17:51	62/55	SL-STRONG, BUT GOOD IN H+K					~10	M4e-M8e			+1				
	RX CEN	13 50.3	-36 51		01 26 10 / 18 01 50	2 23 10 / 18 59 00	57/50						~9.9	M5e			+2				
	R CEN	14 15.2	-59 49		02 31 10 / 19 07 00	02 35 15	1,2/60	2 SL WK IN H+K					~5.8	M4e-M7IIe	NeA	2^5	+4,+5				
	"	"	"		02:37 / 19:13	02:41 / 19:17	4/60	4 STRONG GOOD IN H+K					"	"			+6				
1992	T NOR	15h42.m6	-54°56'		03 01 30 / 19:48:30	04 43 30	96/90	SL-STRONG GOOD IN H+K					~10.5	M3e-M6e	NeA	2^5	-5				
	RU SCO	17 41.0	-43 45		04:57 / 21 33 15	05 13 00	16/12	SL-STRONG GOOD IN H+K					~8.5	M7II-IIIe			-3				
	RR SGR	19 54.8	-29 15		05 22 11 / 21 59 30	05 31 20	2,4/2,6	2 SL WK IN H+K					~7.0	M5e-M6e	NeA	2^5	+1,2				
	"	"	"		05 35 00 / 22 11 20	05 41 00	6/	4 GOOD IN H+K					"	"			+3				
	S MIC	21 25.6	-29 56		05 47 00 / 22 23 24	06 14 00 / 22:51	27/23	SL-STRONG					~9.2	M3e			-1				
	RR CAP	21h01.2	-27°10'		6 43 / 23 19	8:50 / 1:27	127/120	SL-STRONG GOOD IN H+K					~10.8	M5e-M6e	NeA	2^5	+5				
1993	T PHE	0h29.m5	-46°31'		9 25 / 2:02	10 00 / 2:37	35/45	SL-STRONG GOOD IN H+K					~9.5	M5e	NeA	2^5	-5				T=15°C, H=22%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 282

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC 1980	DATE UT 1980	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM FOCUS	SLIT	GRATING / TILT	MAG V	SP	COMP KIND	COMP EXP	CALIB POSN	EMUL	DEV	OBS	REMARKS
1994	R CAR	9h31.7m	-62°42'	AUG 11-12	23:40	23:44	60s/34s	(streaky) GOOD	1"/CLEAR	3.23	100/0.6	120/7.0	5.0	M4e-M8e	NeA	1s	-5	IIa-D	M-5	Crw	T=4°C, H=22%
	S CAR	10h08.7m	-61°27'		23:50	00:00															
					16:30	16:40	10m/11m	strong					8.3	K7e-M4e			-4				
	XZ CEN	12h23.2m	-35°31'	START	00:10	16:49	17m/17m	(STRONG) GOOD					9.0	M5			-2				
				END	0:27	17:07															
	W CEN	11h57.1m	-59°09'		00:41	1:23	42m/40m	SL wk in H+K	✓				9.7	M3e-M5IIIe			-1				
	R CEN	14h15.2m	-59°49'		1:34	1:39	1m/2m/66s	1m sl wk 2m sl strong					6.0	M4e-M7IIIe			+1, +2				1" = SET TRAILS (NOT SEEN!)
	RS SCO	16h54.2m	-45°04'		1:47	3:32															
					18:29	20:12	103m/100m	GOOD	✓				11 v	M5e-M8e	NeA	1s	+4				
1995	RU SCO	17h41.0m	-43°45'		4:06	4:16															
					20:46	20:56	10m/10m	GOOD	✓				8.5	M7IIIe-M7IIIe			-5				
	W PAV	17h48.6m	-62°24'		4:30	6:43															
					21:10	23:24	135m/140m	SL WEAK	✓				11.2	M4e-M7e			-4				
	RR SGR	19h54.8m	-29°15'		7:03	7:06															
					23:43	23:46	160s/2m45s	(strong) GOOD					7.0	M5e-M6e			-2				
	T SCL	0h28.3m	-38°01'		7:20	7:50															
					00:01	00:31	30m/35m	SL wk in H+K					9.9	M3			-1				
	T TUC	22h39.3m	-61°59'		8:00	8:09															
					00:40	00:49	9m/8m	GOOD	(STARS TRAIL FAINT)				8.3	M3IIIe-M6IIIe			+1				
	T GRUS	22h24.6m	-37°40'		8:19	9:25															
					1:00	2:06	65m/65m	SL WEAK	✓				10.5	M1IIIe-M2IIIe			+2				
	S COL	5h46.2m	-31°42'		9:37	10:05							9.7								
					2:18	2:46	28m/30m	VERY GOOD	✓				10.5	M6e			+3				
	T COL	5h18.6m	-33°44'		10:11	10:17															
					2:52	2:58	6m/6m	VERY GOOD	✓				8.0	M4e-M6e			+4				
	W PUP	7h36.1m	-42°09'		TOO LIGHT FOR EXPOSURE								8.5	M3e	NeA	1s	+5				T=12°C, H=26%
1996	R CAR	9h31.7m	-62°42'	AUG 12-13	23:40	23:44	60s/35s	VERY GOOD	2"/CLEAR	3.23	100/0.6	120/7.0	5.0	M4e-M8e	NeA	1s	-5	IIa-D	M-5	Crw	T=12°C, H=22%
	S CAR	10h08.7m	-61°27'		23:50	23:59															
					16:33	16:42	8½m/10m	GOOD					8.3?	K7e-M4e			-4				
	RS CEN	11h19.6m	-61°46'		0:10	1:57															
					16:53	18:38	104m/100m	VERY GOOD	✓ SL STRONG				10.5	M1IIIe-M4e			-2				
	R CEN	14h15.2m	-59°49'		2:03	2:05															
					18:49	18:49	1½m/72s	SL WEAK					6.0	M4e-M7IIIe			-1				
	RR SGR	19h54.8m	-29°15'		2:19	2:21															
					19:03	19:05	120s/160s	GOOD	1"/CLEAR				7.0	M5e-M6e			+1				
	RX MIC	20h53.3m	-27°52'		2:35	4:13			(SL WEAK)												
					19:18	20:57	98m/65m	GOOD	✓				10.5?	M?			+2				
	S MIC	21h25.6m	-29°56'		4:20	4:35															
					21:04	21:19	15m/19m	WEAK					9.2	M3e	NeA	1s	+3				
1997	T TUC	22h39.3m	-61°59'		5:28	5:38									NeA						
					22:12	22:22	10m/6.8m	GOOD	✓				8.1	M3IIIe-M6IIIe		1s	-5	THOUGHT PLATE DAMAGED!			
1998	T SCL	0h28.3m	-38°01'		6:08	7:00															
					22:53	23:45	52m/35m	WEAK (STREAKY)					9.9	M3			-5				
	T PHE	0h29.5m	-46°31'		7:06	7:38															
					23:50	00:14	24m/30m	VERY GOOD	OUT OF FOCUS?				9.7	M5e			-3				DOING! ADDED 29m TO RS PHE (9.17-9.46 UT)
	RS PHE	1h15.2m	-56°50'		7:38	9:03															
					00:22	1:52	80m/85m	VERY GOOD					10.8	M2e			-1				
	W PUP	7h36.1m	-42°09'		9:53	10:15															
					2:43	3:00	16½m/16m	SL STRONG					8.5	M3e			+2				T=10°C, H=26%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC 1980	DATE U.T. 1980	U.T. EXP/LST BEGIN	U.T. EXP/LST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. (V)	SP.	COMP KIND	COMP EXP	GALIB, A&SN	EMUL	DEV	OBS.	REMARKS
~~1999~~ 2000	Y VEL	$9^h28.^m4$	$-52°06'$	AUG 13-14	23:30	23:50	$20^m/26^m$	FAIR TO WEAK	1"/CLEAR	3.23	100µ/0.6	120/7.0	~9.0	M8e	NeA	1s	-5	IIa-D	M-5	CRW	T=13°, H=24%
	R CAR	$9^h31.^m7$	$-62°42'$		23:57	23:59	$60^s/35^s$	VERY GOOD ✓					5.0	M4e-M8e			-4				SET TRAILS HIT S BTTON!
	S CAR	$10\ 08.^m9$	$-61°27'$		16:45	16:47															
					00:05	00:14	$8\frac{1}{2}^m/10^m$	GOOD ✓					8.3	K7e-M4e			-3				
	XZ CEN	$12^h23.^m2$	$-35°31'$		00:20	00:40	$20^m/20^m$	GOOD ✓					9.0	M5			-2				CIRRUS LOW IN WEST
	RU HYA	$14^h10.^m4$	$-28°48'$		1:02	1:32	$30^m/27^m$	(sl wk-H+K) GOOD ✓					9.5	M6e			-1				
	R CEN	$14^h15.^m2$	$-59°49'$		1:42	1:45	$2^m/72^s$	(wk in H+K) GOOD ✓					~6.0	M4e-M7IIIe			+1				SET TRAILS
	SW SGR	$19^h18.^m6$	$-31°45'$ ✓		2:06	2:38	$32^m/40^m$	TOO STRONG					~10.0	M5e			+2				
	T NOR	$15^h42.^m6$	$-54°56'$		2:49	4:08	$79^m/75^m$	VERY GOOD ✓					~10.5	M3e-M6			+3				
	S MIC	$21^h25.^m6$	$-29°56'$		4:25	4:55	$30^m/23^m$	SL STRONG					~9.4	M3e	NeA	1s	+4				
!!	~~2000~~ 1999 T PHE	$0^h29.^m5$	$-46°31'$		5:24	5:50	$26^m/25^m$	VERY GOOD ✓					~9.7	M5e			-5				
	T SCL	$0^h28.^m3$	$-38°01'$		6:08	6:57	$46^m/35^m$	(wk in H+K) GOOD ✓					~9.9	M3			-4				
	U SCL	$1^h10.^m6$	$-30°13'$		7:00	8:13	$73^m/75^m$	✓✓ EXCELLENT					10.5?	M5e			-3				
	R HOR	$2^h53.^m2$	$-49°58'$		8:35	9:40	$65^m/65^m$	(sl wk.) GOOD ✓					10.5?	M5e-M7IIIe	NeA	1s	-2				
	R RET	$4^h33.^m3$	$-63°04'$		9:45	10:01	$16^m/15^m$	(GOOD in H+K) SL. STRONG					8.5?	M4e			+1				
	W PUP	$7^h45.^m3$	$-42°09'$		10:05	10:14	$9^m/8^m$	STRONG					8.0?	M3e			+2				
	T COL	$5^h18.^m6$	$-33°44'$		10:17	10:22	$5^m/6^m$	(SL. STRONG) GOOD ✓					8.0	M4e-M6e	NeA	1s	+3				T=15°C, H=20%
2001	EV VIR	$14^h12.^m0$	$-13°46'$	AUG 14-15	00:39	00:43	$240^s/190^s$	(SL STRONG) GOOD ✓	1"/SOME CIRRUS	3.23	100/0.6	120/5.0	7.2	M4-M4.5 II-III	[redacted]	[redacted]	-5	IIa-D	M-5	CRW	T=14°C, H=22%
	α' HER	$17^h13.^m8$	$+14°24'$		00:52	00:56	$46/42^s$,	4 TRAILS					3.1-3.9	M5III-II			-4,-3,-2				
	RX BOO	$14^h23.^m3$	$+25°47'$		1:07	1:34 SET TRAILS	9^s	GOOD					7.0-9.1	M7.5-8			+1,+2				
	V842 AQL	$19^h12.^m9$	$+2°35'$		17:43	17:47	$8,16/8^m$,	SL WEAK GOOD					9.2	M6III	NeA	1s	-1				
	SW SGR	$19^h18.^m6$	$-31°45'$		1:43	2:07	16^m						9.3?								
					18:34	18:59	$24^m/20^m$	V VERY GOOD					~~10.0~~	M5e			+3,+4				
	S MIC	$21^h25.^m6$	$-29°56'$		2:17/26	2:42	$9^m/20^m$	MUCH TOO STRONG					9.2	M3e			+5				
	KZP 5468	$21^h45.^m6$	$-2°18'$		19:08	19:37															
					3:02	3:24	$22^m/23^m$	(SL weak) GOOD					6.4-6.8	M1III			+6				T=15°, H=22%
					19:54	20:16															
					3:32	3:35	$150^s/2^m$	SLIGHTLY STRONG													
					20:24	20:27															

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 284

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA 1980	DEC 1980	DATE U.T. 1980	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR.	~~HA END~~ QUALITY	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2002	HD179515	19 11 C	+4° 19'	2/04	00 16 00 / 18 27 CST	03 26 00	2h / 170m / 25m	WEAK	1-2"/Clr	345	50μ/8	67/5.3	7.7-7.9	K2			1C	IIaO	MS	W12	T=4°C, H=66%
	HD179156	19 10.3	+4 0.9	"	3 33 30 / 03 26 00		9C 31m / 5.5m	GOOD	"	"	"	"	7.2	G5	N.A	55s	12				
2003	RR SGR	19 54.8	-29 15	"	06 03 00 / 08 05 00	07 24 00 / 01 26 19	81m / 75m	WEAK	"	"	"	"	~7.0	M5e-M6e	"	"	10	"	"	"	
	T COL	5 18.6	-33 44	"	08 13 00 / 02 14 20	10 13 00	120 / 120m	WEAK	"	"	"	"	~7.5	M4e-M6			12	"	"	"	5°C 49%
2004	R CEN	14h15.2m	-59°49'	SEPT 2-3	00 41 / 18 46	01:11	30m / 15m	EXCELLENT ✓	2-3"/CLR	3.18	100μ/0.8	120/7.0	~6.5	M4e-M7IIIe	N.A	10s	10	IIaO	MWP-2	CW	T=10°C, H=44%
	SW SGR	19h18.6m	-31°45'		2:24 / 20:30	3:24	60m/60m	VERY GOOD ✓					~8.0	M5e			12				RIGHT STAR? NO!
	RR SGR	19h54.8m	-29°15'		3:38 / 21:44	4:20	42m/40m	EXCELLENT ✓	2"/CLR				~7.5	M5e-M6e			14				
	S SCL	0h14.4m	-32°09'		5:18 / 23:24	7:00 / 1:06	102m/120m	VERY GOOD ✓					~8.8	M3e-M5e			16				
	R RET	4h33.3m	-62°04'		8 02 / 2:08	9:25 / 3:32	83m/90m	GOOD ✓					~8.5	M4e			18				
	T COL	5h18.6m	-33°44'		9:32 / 2:39	10:05 / 4:12	33m/37m	TOO WEAK					7.5?	M4e-M6			20				T=16°C, H=30%
2005	XZ CEN	12h23.2m	-35°31'	SEPT 3-4	23:52 / 18:01	00:52 / 19:01	60m/90m?	FAIR TOO WEAK	2"/CLEAR	3.18	100μ/0.8	120/7.0	9.0?	M5	N.A	10s	10	IIaO	MWP-2	CW	T=13°C, H=32%
	RU HYA	14h10.4m	-28°48'		1:02 / 19:11	2:07 / 20:16	65m/90m?	FAIR TOO WEAK					9.0?	M6e			12				
	RU SCO	17h44.0m	-43°45'		2:35 / 20:44	4:05 / 22:16	90m/120m	TOO WEAK					9.5	M7IIIe-IIIe			14				
	T TUC	22h39.3m	-61°39'		4:45 / 22:54	6:27 / 00:37	102m/100m	TOO WEAK					9.0	M3Ie-M6IIIe			16				
	U ERI	3h49.7m	-25°01'		6:50 / 01:00	8:22 / 2:32	82m/120m	WEAK (H+K)					9.5	M4e			18				
	T COL	5h18.6m	-33°44'		8:26 / 2:36	9:19 / 3:30	55m/60m	WEAK (H+K)					8.0?	M4e-M6			20				
	W PUP	7h45.3m	-42°09'		9:26 / 3:38	9:58 / 4:09	32m/36m	GOOD (± H+K)					7.5?	M1e			22				T=15°C, H=22%
2006	S CAR	10h08.7m	-61°27'	SEPT 4-5	23:48 / 18:01	23:56 / 18:07	8m/11m		1"/CLEAR	3.18	100μ/0.6	120/7.0	8.0	M8IIIe	N.A	1s	-5	IIIe-D	M-5	CW	T=16°C) H=24%
	XZ CEN	12h23.2m	-35°31'		00:05 / 18:18	00:31 / 18:44	26m/25m						9.0	M5			-4				
	RU HYA	14h10.4m	-28°48'		00:39 / 18:52	1:28 / 19:41	49m/43m						9.5	M6e			-3				
	R CEN	14h15.2m	-59°49'		1:38 / 19:51	1:46:30 / 19:54:30	130s/130s,260s						6.5	M4e-M7IIIe			-2,-1				
	RU SCO	17h41.0m	-43°45'		2:02 / 20:15	2:31 / 20:44	29m/25m						9.5	M7IIIe-IIIe	N.A	1s	+1				
	SV SCO	17h47.0m	-35°42'		2:39 / 20:52	3:21 / 21:35	42m/40m						10.0	M3e			+2				
	SW SGR	19h18.6m	-31°47'		3:32 / 21:45	4:23 / 22:36	51m/50m						10.2	M5e			+3				
	RR SGR	19h54.8m	-29°15'		4:29 / 22:43	4:42 / 22:56	4,8s/4,8m						7.5	M5e-M6e	N.A	1s	+4,+5				
2007	S MIC	21h25.6m	-29°56'		5:18 / 23:31	6 33 / 00:47	75m/65m						10.5	M3e			-5				
	T TUC	22h39.3m	-61°39'		6:40 / 00:54	7:17 / 1:30	37m/30m						9.5	M3Ie-M6IIIe			-4				
	V PHE	23h31.4m	-46°05'		7:26 / 1:39	8:10 / 2:24	44m/40m						10.0	M4e			-3				
	S SCL	0h14.4m	-32°09'		8:25 / 2:39	8:38 / 2:52	13m/13m						8.8	M3e-M5e			-2				
	U ERI	3h49.7m	-25°01'		8:47 / 3:01	9:17 / 3:31	30m/25m						9.5	M4e			-1				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC. 1980	DATE U.T. 1980	U.T. EXP/LST BEGIN	U.T. EXP/LST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG V	SP.	COMP KIND	COMP EXP.	CALIB. POSN	EMUL	DEV	OBS	REMARKS
2007	T COL	5h18.m6	-33°44'	~~SEPT~~ 4-5	9:35	9.46	10m/10m	GOOD (MK STAR)	1"/CLEAR	3.18	100/0.6	120/2.0	8.0	M4e-M6			+1	IIa-D	M-5	Crw	
					3:49	4:00															
	W PUP	7h45.m3	-42°09'		9-52	9:56	4m/4m	GOOD (WK IN BLUE END)					7.5	M3e	NeA	1S	+2				T=14°, H=22%
					4:06	4:10															
2008	S CAR	10h08.m7	-61°27'	SEPT 5-6	23:36	23:43	2m,4m,4m,2m	TOO STRONG	1"/CLEAR	3.18	100/0.6	120/2.0	7.0	K7e-M4e			-4	IIa-D	M-5	Crw	T 15°C, H=26%
					17:52	17:59											-5				
	XZ CEN	12h23.m2	-35°31'		23 54	00:39	45m/40m	EXCELLENT	✓				9.5	~~M3~~ M5			-3				
					18:11	18:56															
	R CEN	14h15.m5	-59°49'		00:56	1:03	130S/130S / 210S/260S	130S ✓ 210 SL STRONG					6.5	M4e-M7IIIe			-2,-1				
					19:13	19:20															
	RU SGR	19h57.m3	-4°54'		1:53	3:33	100m/100m	GOOD (WK+K)	SL ✓ STRONG				11	M3e-M6e	NeA	1S	+1				
					20:10	21:50															
	RT SGR	20h16.m5	-39°10'		3:41	4:46	65m/65m	VERY GOOD	✓				10.5	M5e-M7e			+2				
					21:58	23:03															
	R MIC	20h38.m9	-28°52'		5:07	6:24	77m/75m	WRONG STAR					10.7	M4e			+3				
					23:25	23:42															
2009	T PHE	0h29.m5	-46°31'		6:55:30	8:34	99m/100m	EXCELLENT	✓				~11	M5e			-5				
					1:13:30	2:52															
	R RET	4h33.m3	-63°04'		8:40	8:51	11m/10m	EXCELLENT	✓				8.5	M4e			-4				
					2:58	3:09															
	W ERI	4h10.m7	-25°11'		8:55	9:25	30m/30m	VERY GOOD	✓				9.7	M7e			-3				
					3:13	3:43															
	T PIC	5h14.m6	-46°56'		9:29	9:46	17m/16m	EXCELLENT	✓				9.0	M6IIIe			-2				
					3:47	4:04															
	T COL	5h18.m6	-33°44'		9:49	9:59	10m/10m	VERY GOOD	✓				8.0	M4e-M6	NeA	1S	-1				T=15°C, H=25%
					4:07	4:17															
2010	S CAR	10h08.m7	-61°27'	SEPT 6-7	23:42	23:45	90S/60S, 1m	90S SL STRONG	1"/CLEAR	3.18	100/0.6	120/2.0	~~6.5~~	K7e-M4e			-4	IIa-D	M-5	Crw	T=15°C, H=26%
					18:02	18:05											-5				
	RS CEN	11h19.m6	-61°46'		00:00	00:50	56m/90m	TOO WEAK					10.5	M1IIIe-M4e			-3				IMAGES DEFOCUSSED!
					18:20	19:11															
	RT CEN	13h46.m9	-36°46'		1:09	2:19	70m/70m	FAR TOO WEAK					10.2	M6IIIe			-2				
					19:29	20:40															
	R CEN	14h15.m2	-59°49'		2:30	2:32	120S/130S	GOOD BUT FUZZY					6.5	M4e+M7IIIe	NeA	1S	-1				
					20:51	20:53															
	S MIC	21h25.m6	-29°56'		3:35	5:07	93m/90m	GOOD ✓					10.9	M3e			+1				
					21:56	23:28															
	T GRU	22h24.m6	-37°41'		5:17	7:02	105m/100m	SL STRONG					SHOULD BE 10.5 11	M4IIIe-M7IIIe			+2				
					23:38	1:24															
2011	R HOR	2h53.m2	-49°58'		7:57	9:47	90m/100m	VERY GOOD ✓					11	M5e-M7e			-5				
					2:19	3:50															
	R RET	4h33.m3	-63°04'		9:31	9:42	11m/10m	GOOD (WK+K) ✓					8.5	M4e II-III			-4				
					3:53	4:04															
	T COL	5h18.m6	-33°44'		9:45	9:55	10m/10m	VERY GOOD ✓					8.0	M4e-M6			-3				
					4:07	4:17															
	W PUP	7h45.m3	-42°09'		9:57	10:02	5m/5m	GOOD ✓ (BLUE END)					~7.5	M3e	NeA	2S	-2	COMPARISON STRONG			T=13°C, H=23%
					4:19	4:25															
2012	S CAR	10h08.m7	-61°27'	SEPT 7-8	23:39	23:48	75S/75S	VERY GOOD ✓	1½"/CLEAR	3.18	100/0.6	120/2.0	~6.0	K7e-M4e			-5	IIa-D	M-5	Crw	T=10°C, H=35%
					18:03	18:05															
	U CEN	12h32.m4	-54°33'		23:51	00:57	66m/60m	VERY SL WK GOOD WK+K ✓					10.1	M3IIIe-M4IIIe			-4				
					18:15	19:22															
	R CEN	14h15.m2	-59°49'		1:05	1:07	125S/130S	GOOD					6.5	M4e-M7IIIe			-3				
					19:30	19:32															
	RS SCO	16h54.m2	-45°04'		1:17	3:57	160m/150m	GOOD SL WK ✓					11.4	M5e-M8e	NeA	1S	-1				
					19:42	22:22															
	RR SGR	19h54.m8	-29°15'		4:04	4:08	4m/220S	EXCELLENT ✓					7.5	M5e-M6e			+1				
					22:29	22:33															
	T GRU	22h24.m4	-37°40'		4:15	5:21	66m/60m	GOOD ✓	2"-4"/CLEAR				10.5	M1IIIe-M2IIIe			+2	AT MINIMUM			HUMIDITY CLIMBING! T=5°C H=50%
					22:40	23:46															
	S SCL	0h14.m4	-32°09'		5:29	5:50	21m/18m	EXCELLENT ✓	3"/CLEAR				8.8	M3e-M8e	NeA	1S	+4				
					23:54	0:16															

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT 1980	R.A. 1980	DEC. 1980	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB. POS'N	EMUL.	DEV.	OBS.	REMARKS
2013	RS PHE	1h 15.6m	−56° 56′	SEPT 7-8	6:30	8:30	120m/160m	EXCELLENT ✓	1″/CLEAR	3.18	100/0.6	120/h.0	11.5	M2e			−5	IIa-D	M-5	Crw	H=35% T=7°C
	S COL	5h 46.2m	−31° 42′		8:53	9:27	34m/40m	VERY GOOD (sl strong) ✓					10	M6e			−3				
	R RET	4h 33.3m	−63° 04′		3:19	3:53															
					9:51	9:59	8m/8m	✓ EXCELLENT					8.5	M4e			−2				
	W PUP	7h 45.3m	−42° 09′		4:17	4:25															
					10:01	10:05	4m/4m	GOOD sl wk in BLUE					7.5	M3e	NeA	1S	−1				H=32% T=7°C
2014	S CAR	10h 08.7m	−61° 27′	SEPT 8-9	23:40	23:42	4 COMET TRAILS/75s	WRONG STAR!!	1″/CLEAR	3.18	100/0.6	120/h.0	6.0	K7e-M4e			−5	IIa-D	M-5	Crw	T=10°, H=33%
				SEPT.	18:08	18:10															
	RT CEN	13h 46.9m	−36° 46′	8-9	23:57	1:38	108m/120m	SL. WEAK ✓					10.8	M6IIIe			−4				
					18:25	20:07															
	R CEN	14h 15.2m	−59° 49′		1:50	1:53	150s/125s	VERY GOOD ✓					6.5	M4-M5IIIe			−3				
					20:19	20:22															
	T APS	13h 54.0m	−77° 42′		2:14	2:39	25m/25m	SL. STRONG					9.1	M3e			−1				
					20:43	21:08															
	RR SCO	16h 54.0m	−30° 33′		2:48	4:32	104m/150m	✓✓ EXCELLENT					11.3	M6IIIe-M8IIIe			+1				
					21:17	23:01															
	T TUC	22h 39.3m	−61° 39′		4:42	5:07	25m/25m	SL wk in BLUE					9.5	M3IIIe-M6IIIe			+2				
					23:11	23:36															
	V PHE	23h 31.4m	−46° 05′		5:16	6:16	60m/52m	✓✓ EXCELLENT					10.3	M4e			+4				
					23:45	00:45															
2015	T HOR	3h 00.3m	−50° 43′		6:50	7:55	65m/60m	VERY GOOD for H/K ✓					10.5	M5IIIe			−5				
					1:20	2:25															
	T PIC	5h 14.6m	−46° 56′		8:12	8:29	17m/16m	VERY GOOD for H/K ✓					9.0	M6IIIe			−3				
					2:42	2:59															
	T COL	5h 18.6m	−33° 44′		8:34	8:44	10m/10m	SL wk in H+K					8.0	M4e-M6	NeA	1S	−1				
					3:04	3:14															
	AS PUP	8h 09.0m	−38° 07′		8:50	9:31	41m/45m	VERY GOOD ✓					10.0	M7e			+1				
					3:20	4:01															
	R CAR	9h 31.7m	−62° 42′		9:54	10:02	2,3,4 5s/80s	2,3,4,5 ✓✓ for H/K					6.0	M4e-M8e	NeA	1S	+3,+4,+5,+6		M-5		T=12°, H=18%
					14:52	4:32	TRAILS														
2016	RX CEN	13h 50.3m	−36° 51′		23:50	1:28	98m/150m	VERY GOOD ✓	1″/CLEAR	3.18	100/0.6	R0/h.0	11.2	M5e			−5	IIa-D		Crw	T=14°C, H=20%
	RU HYA	14h 10.4m	−28° 48′		18:22	20:01															
					1:31	2:11	40m/40m	TOO WEAK					9.5	M6e			−3				
					20:04	20:44															
	R CEN	14h 15.2m	−54° 49′		2:19	2:21:30	150s/125s	VERY GOOD ✓					6.5	M4e-M7IIIe			−1				
					20:52	20:51:30															
	T APS	13h 54.0m	−77° 42′		2:33	2:53	20m/17m	GOOD ✓ sl strong					8.7	M6e	NeA	1S	+1				
					21:06	21:16															
	δ2 LYR	18h 53.7m	+36° 52′		3:20	3:22	20s,16s/20s,40s	40s sl wk in H/K					4.3	M4II			+2,+3				SET TRAILS
					21:53	21:55															
	V450 AQL	19h 32.8m	+5° 25′		3:33	3:38	75s/150s,75s/150s	VERY GOOD ✓					6.3-6.9	M5-5SIII	NeA	1S	+4,+5				GUIDE TRAILS
					22:06	22:11															
2017	EP AQR	21h 45.6m	−2° 18′		4:05	4:09	75s/120s,80s,120s	✓ EXCELLENT					6.4-6.8	M7III			−5,−4				〃
					22:42	22:46															
	α VUL	19h 28.0m	+24° 38′		4:22	4:24	20s/30s,20s,30s	30s wk in H/K					4.95	M4.5III			−3,−2				SET TRAILS
					22:55	22:57															
	β AQR	20h 46.7m	−5° 06′		4:35	4:36	20s/15s	wk in H+K					4.42	M3III			−1				SET TRAILS
					23:08	23:09															〃
	λ AQR	22h 51.6m	−7° 41′		4:40	4:42	3,4 TRAILS/8s	4 TRAILS sl wk	ALL STREAKY				3.76	M2-5IIIe	NeA	1S	+1,+2				
					23:13	23:15															〃
	30 PSC	0h 00.9m	−6° 07′		4:46	4:47	20s/15s	GOOD sl wk in H/K					4.41	M3III			+3				
					23:19	23:20															
	57 PSC	0 45.5m	+15° 22′		4:56	4:58	3,2 TRAILS/36s	3 TRAILS GOOD ✓					5.38	M4IIIa			+4,+5				GUIDE TRAILS
					23:29	23:32															
	45 RZ ARI	2 54.7m	+18° 16′		5:04	5:06	75s/75s	GOOD ✓					5.9v	M6III			+6				4 GUIDE TRAILS
					23:37	23:39															

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC 1980	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	~~CALIB~~ POS'N	EMUL	DEV	OBS	REMARKS
2018	β AQR	21h30.5m	−5°40′	SEPT 9-10	5:40 00:13	5:42 00:15	3,2 TRAILS / 3s	2 TRAILS GOOD ✓	1"/CLEAR	3.18	100/0.8	120/7.0	2-58	G0Ib			−5,−4	IIIa-D	M-5	CrW	SET TRAILS
	ε PEG	21h43.3m	+9°47′		5:49 00:22	5:50 00.23	3,2 TRAILS / 2s	2 TRAILS GOOD ✓					2.40	K2Ib			−3,−2				〃
	9 PEG	21h43.6m	+17°15′		5:56 00:29	5:57 00:31	15s / 14s	SO WK					4.32	G5Ib			−1				〃
	12 PEG	21h45.3	+22°51′		6:02 00:35	6:04 00:37	3,3 TRAILS / 36s	3 TRAILS GOOD ✓					5.29	K0Ib	NeA	2s	+1,+2				36s, 60s. GUIDE TRAILS
	α AQR	22h04.7m	−0°24′		6:10 00:43	6:11 00:44	2,3 TRAILS / 3½s	3 TRAILS VERY GOOD ✓					2.93	G2Ib			+3,+4				SET TRAILS
	65 ξ¹ CET	2h12.0m	8°46′		6:18 00:51	6:20 00:53	60s / 14s	15s VERY GOOD ✓					4.36	G8II CN-2			+5,+6				Count 60s rather than SET TRAILS 30s
2019	ρ PER	3h03.9m	+38°46′		6:43 1:17	6:44 1:18	4,8 TRAILS / 17s, 15s	wk in BLUE 15s ✓			100/0.6		3.2-4.1	M4II			−5,−4				SET TRAILS
	DG ERI	4h19.8m	−16°52′		6:51 1.25	6:59 1:33	150s / 150s	150s ✓ 240s ✓ for H/K					~7.0	M4-TIII			−3,−2				GUIDE TRAILS
	δ LEP	6h04.4m	−24°11′		7:09 1:43	7:15 1:49	100s / 100s, 200s	100s ✓ 200s sl streaky					6.5-7.2	M6III	NeA	1s	+1,+2				〃
	119 TAU	5h31.7m	+18°35′		7:24 1:57	7:28 2:01	25s / 25,50s	wk in BLUE sl streaky					4.73	M2Iab-II			+3,+4				〃
	6 BU GEM	6h11.1m	+22°55′		7:35 2:08	7:39 2:13	4m / 4m	wk in BLUE sl streaky					6.1-7.5	M1-M2Iab			+5,[illegible]				〃
	μ GEM	6h21.8m	+22°32′		7:47 2:21	7:48 2:22	5 SET TRAILS / 6s	TOO WEAK					2.97	M3IIIab			−1				SET TRAILS
2020	V HOR	3h03.0m	−59°00′		8.14 2:[illegible]32	8:25 2:59	7m / 7½m	TOO STRONG					8.0?	M5III			−5				VARIES from 8.7-9.8
	R DOR	4h35.6m	−62°07′		8:32 3:06	8:34 3:08	1,2 TRAILS / 25s, 60s	25s ✓ 60s ✓ for H/K					5.0-6.0	M8e III			−4,−3				GUIDE TRAILS
	O CET	2h18.3m	−3°05′		8:41 3:15	8:42 3:16	2,4 TRAILS / 3½s	2 TRAILS ✓ 4 for H/K ✓					~3.0	M5e-M9e			−2,−1				SET TRAILS
	T COL	5h18.6m	−33°44′		8:49 3:23	9:03 3:37	14m / 10m	VERY GOOD ✓					8.0	M4e-M6			+1				
	RZ CAR	10h35.1m	−70°37′		9:15 3:49	9:45 4:19	30m / 30m	sl streaky GOOD H/K					9.2	M4e-M8e			+2				
	S CAR	10h08.7m	−61°27′		9:51 4:25	9:55 4:29	100s / 75s	75s ✓ 100s ✓ for H/K					6.0	K7e-M4e			+3,+4				
	R CAR	9h31.7m	−62°42′		9:58 4:32	10:02 4:36	2,4 TRAILS / 80s	✓✓ EXCELLENT					6.0	M4e-M8e			+5,+6				T=12°C, H=20%
2021	V593 CrA	18 24 37	−37 07 47	Sept 11-12	00 14 18 54 25	00 15 23 56	30m / 30m	VERY GOOD ✓	1"/clear	3.18	100/0.6	120/6.0	~13	?	NeA	1s	−4	IIIa-D	M-5	W	T=15°C, H=20%
2022	EP AQR	21 45 6	−2 18		00 00 00 11 7	00 00 00 24 1 16	22s / 22m	✓✓ EXCELLENT	2"/clr		100/0.8		~8	M7III	NeA	10s	8	IIIa-C	M-2		T=14°C 20%
	N¹ AQR	22 51.6	−7 41		00 00 36 00 1 17	00 00 40 00 1 21	68s, 118s	68 ✓ wk in BLUE 118 ✓ for H/K					3.7c	M2.5III			9,10				
	30 PSC	00 00 4	−6 C7		00 00 46 00 1 27½	00 00 52 00 1 33½	130s, 190s	130s ✓ 190 ✓ for H/K					4.41	M3III			12,13				
	T PIC	05 14.6	−46 56		00 1 17, 00 1 59½	8:45 3 27	88m / 100m	SL WK SPLIT EMISSION LINES!			100/0.6		4.65	M6III:e			15			W/Cr	split emission lines
	W PUP	7h45.3m	−42°09′		8:52 3 32	9:23.3 4:03.3	33½/37m	TOO WEAK?			100/0.8	must be more faint	7.45	M3e			17			Cr	
	R CAR	9h31.7m	−62°42′		9:36 4:13	9:46 4 28	15m / 15m	✓✓ EXCELLENT					6.05	M4-M5e			19				
	S CAR	10h08.7m	−61 27′		9:48½ 4:32½	10 03 4:44½	14m / 15m	SL STRONG ✓ VERY GOOD H/K					6.0	K7e-M4e			21				
	O CET	2h18.3m	−3°05′		10 07 4:50	10:12 4:55	15 30 45s / 16s	30s ✓ 45s ✓ for H/K ⇒ V=2.8					3.0	M5e-M6e	NeA	10s	23,24,25s6				T=14°C. H=20%

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	App. dia. MAG	Concin SP.	COMP. KIND	COMP. EXP.	CALIB POSN	EMUL	DEV	OBS	REMARKS
2023	Nx:6440	17 17.8	-20 19	Sept/22 12-13	00 17 00 01 40 00	01 40 00 01 43	Tracked ~30m 40s		1"/Clear	3.18	150μ/1.2	120/1.0	12.05	Conc II G5			-5	IIa-O	MWPC	Cy	T=15°C, H=20%
	"	"	"	"	01 43 20 27½	01 48	~5m		"	"	"	"	"	"			-3	"	T=12°F	"	REPUBLIC STATE VISIT (AMBASSADOR)
	NGC 7078	21 28.8	+12 03		03 32½ 22 17½ 04 06	03 52½	20m	1 HOW	"	"	"	"	12.3 7.33	IV dF0			-1	"	"		
	NGC 288	00 51.9	-26 41			07 36	5hr	3:35 W	1"-2" mostly clr	"	"	"	12.4 8.3	V A0	Ne A	1s	+1				cloud patches increasing Tracked
2024	NGC 6541	18h 06.5	-43 41	13/14 Sept 22	00 02½	02 02	2hr 30	2h 45 W	2"/Clear	"	"	"	23.2 7.9	III F6:G0 F4			-5	"	"	"	T=11° H=3% Tracked, bright nucleus
	NGC 6864	20h 04.9	-21° 56		02 11	03 21	1h 10m 1 45	2:05 W	" "				4.6 9.5	I B0			-3				Tracked
	NGC 362	1h 03.4	-70° 57		04 27	04 44	20m	1:30 E	" "				11.7 8.0	III G0			-1				Tracked
	NGC 2298	6h 48.2	-36° 00		05 53	09 30	3hr 37m 4hr	2:25 E	" "				4.2 10.48	III F8	Ne A	1s	+1				Drift S tracked T=9C H=55%
2025	NGC 6517	18 00.7	-8 58	14/15 Sept 22	23 54	01 56	2hr 02 6hr	2:49 W	2" Clear				1.0 12.40	IV G0			+6	"	"	Cy	T=8° H=28% Tracked/Sch mass 35 Test Trail
	NGC 6809	19 38.9	-31 00		02 04	04 34	2½hr	3:52 W					14.9 7.62	V F5	Ne A	1s	+7				
	NGC 2295	6h 48.2	-36° 00		05 59	08 00	121m	5:55 E	"	3.36	"	120/1.0	4.2 10.48	III F8			-1				
	NGC 288	00 51.8	-26° 41		08 09	09 09	90m 1hr	3:43 W	"		"		12.9 8.16	V A			-3	Calib plate 20m + 4" Neon (←V)			Drift, attended; Tracked W→E
2026	NGC 6362	17 24.0	-67 02	15/16 Sept 22	09 12	04 26	7hr	5.50 W	3" Clear	3.18	"	120/2.0	5.5 5.3	V A			+6				Moon 60° away Tracked
	NGC 1261	03 12.0	-55° 17		05 10	07 40	2½hr 3½	0:35 E	" Cirrus				+0 9.5	II F5			-3				Tracked
	NGC 2808	09 12.0	-64° 45		07 47	09 27	1h 40m 1hr	4:45 E	" clear				18.8 7.18	I F7	Ne A	1s	+1	calib plate 20m + 4" Neon (←V)			T=9C H=23%
2027	SA 99-28	01h 04.9	-27° 50	18/19 Sept 22	04 47	05 09	22m	0:41 E	2" Thin cirrus	1T 3.31	100μ/1.8	120/1.0	12.3 ~8.0	V	"	"	+5	IIa-D	Mono	Cy	T=2C H=77% 25" Moderate winds
2028	I 236 B	14h 51.1	-73° 07	20/21 Sept 22	00 11	01 24	70m 100m	5:50 E	1½-2" clear	2.64	50μ/1.2	67/5.05	~8.9	G5	Ne A	6s	35m 5.14V	IIa-O Baked 1½ hr @ 65°C	H=6, G=5 15m	Cy	Doc Trail (Guiding) Da Trail H=5 G=6 W=5
	I 236 A	" "	" "		01 27	01 45	18m 60m	6:12 E	2" "				-6.4	G5							
	AGS 12506 B	19h 28.7	-27° 01		02 07	04 12	2m 05 5m	3:45 E	2" "				~7.5	?							
	" " A	" "	" "		04 15	04 30	15m 25m	4:06 E	" "				6.57	K3 III							
2029	-35° 170 A	0h 32.7	-35° 05		05 14	05 29	15m	0:12 W	" "				~7.4	G0	"	"	"	"	"		
	" " B	"	"		05 30	05 28	118m	2:13 W	1.5" "				~9.2	?							
	" " A	"	"		05 30 07 30	08 00	30m	2:45 W	2" "				7.4	G0							"watery seeing" & t ~ column = 4" apart
	AGS 3107 A	4h 42.6	-02° 47		08 12	08 46	34m 60m	0:37 E	3" "				~7.2	F5							S & G pair
	" " B	" "	"		08 46	09 24	36m	0 00	" "				~7.3	F5							N & F pair T 5 H 45 W 15
2030	AGS 12594 A	19h 32.4	+20° 22	21/22 Sept 22	00 04	00 57		0:45 W	2½" clear				~7.4	A3	-	30s	30m 5.16V	-	-	Cy	T 6 H 40 W 25
	" " B	"	"		00 59	03 02	1hr 150	0:50 W	2-3" "		0.6		8.4	?							
	HD 202730 A	21h 18.7	-54° 32		03 25	03 43	3hr 46m 3	01:45 W	" "		1.2		4.9	A5							Doc Trail
	" " B	"	"		03 54	04 59	60m	02:53 W	" "		"		7.2	?							
2031	AGS 1166 A	1h 21.6	-19° 10		05 34	06 05	31m	00:06 E	" "				6.5	F5	"	"	30m 5.16V	"	"	"	Doc Trail

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2031 (cont'd)	ADS 1106 B	1h 21.6	−19° 10		0608	0733	90m / 1+c	1:38 W	2-3" clear	2.84	50μ / 0.6	67 / 5.05	8.5v		N+A	40"	30m @ 16v	IIaO 3 speed grains @ 65°C	m-3, 15m, 16F	Cy	Dec Trail. SW component] i Pu HR 8456/4 NW
	−53° 760 A	4h 50.5	−53° 29		0757	0812	15m / 12	1.19 E	2½"		/ 1.2		5.6v	F0							
	−53° 760 B	"	"		0814	0844	30 /	0:45 E	" / 2 clouds				6.4	F0							
	ADS 4179 A	5h 34.0	+09° 55		0853	0903	1', 2', 4m /	1:10 E	" "				3.7	05							
	" " B	"	"		0906	09:37	11', 17m / ✓	C.36 E	"				5.6	05							T 10 H 25 W 30
2032	ADS 14279 A	20h 45.7	+16° 03	22/23 Sept 80	0025	0046	10', 7m / ✓10	0:37 E	1.5" cirrus patches	"	"	"	5.31	K1 IV	-	-	30m @ 14v	-	-	-	T 12 H 25 W 20 Dec Trail
	" " B	"	"		0052	0101	9m / ✓	0:16 E	"				5.63	F7 V							
	−43° 14539 A	21h 25.8	−42° 38		0115	0123	8m / ✓	0:40 E	clear				5.7v	A3							
	" " B	"	"		0130	0220	50m / 60	0:18 W	1" clear				8.0v	-							
	−47° 14651 A	23h 38.4	−46° 45		0232	0248	16m / ✓	1h 27 E	"				6.6v	A3							nDec Trail W 25-30 seeing variable
	" " B	"	"		0254	0320	26m / 32	0h 54 E	1"-3" "				7.2v	-							
	−35° 170 A	0h 32.7	−35° 05		0334	0409	35m / ✓	1h 00 E	1.5" "				6.5v	G0							
	" " B	"	"		0412	0552	100m / ✓	0h 45 W	"		0.8		8.6v	-							12h moon 230° 5A
2033	I 27 C	1h 13.3	−68° 57	"	0638	0758	30m / 100	2h 13 W	1" "		1.2		7.8v	G5	"	"	"	"	"	"	T 9 H 25 W 25 N Kapteyn
	" D	"	"		0800	0930	90m / ✓	3h 45 W	15" "		0.8		8.4v	-							S " -10° rotation
2034	ADS 14430 A	20h 54.7	+04° 27	23/24	0009	0046	37m / 45 ✓	0.40 E	2" clouds		1.2		6.2v	G0	N+A	30°	"	"	"	"	T 8 H 40 W 20 Dec Trail @ 10° rotation
	" B	"	"	Sept 1980	0055	0229	94m / 55	1h 0:W	"		0.8		7.1v	-							
	ADS 14592 A	21h 03.0	−05° 54		0251	0317	26m / ✓	1h 42 W	" "		1.2		5.9v	G4							
	" B	"	"		0320	0407	47m / 55	2:32 W	1.5" "				7.3v	A3							
	HR 8631	22h 39.8	+14° 26		0413	0440	27m / ✓	1h 29 W	"				5.72v	G3 V							Std. Wrappair Dec Trail Ekstrom
2035	−60° 162 A	1h 54.7	−60° 24		0525	0611	46m / ✓	0h 16 E	"				7.1v	F0	"	"	"	"	"	"	
	" " B	"	"		0618	0711	53m / ✓	0h 45 W	"				7.3	~F0							
	ADS 3077 A	4h 13.4	−10° 17		0730	0748	18m / ✓	0h 56 E	2" "				6.0B	K3 III							T 13 H 33 W 25
	" B	"	"		0750	0932	102m / 3c	0 45 W	"		0.8		8.2v	-							
2036	ADS 13403 A	20h 06.9	+09° 20	25/26	0005	0035	30m / ✓	0:03 W	1½" clear		1.2		6.5v	F5	-	-	-	-	-	-	T 8 H 32 W 22 stopped by cloud ~ elite ~ 4 u.
	" " B	"	"	Sept 80	0040	0120	~40m / 12	0:50 W	" thin cirrus		0.8		8.6v	-							
	HR 7121	18h 54.0	−26° 20		0140	0147	17, 4 / 6	2:30 W	2.5" clear + Stratus		1.2		1.9B	B2.5 V							clouded out.
2037	ADS 13403 B	20h 06.9	+09° 20	26/27	23:58	0157	119 / 180	1:30 W	1.5" clear		0.8		8.6v	~G5:				IIaO Record 120m 65°C			T 6 H 60 W ?
	−33° 16270 A	22h 51.5	−32° 58	Sept 80	2:58	3:08	4, 3, 5 / 4 ✓	0:05 E	"		1.2		4.6v	A0							Dec Trail Contain streaks?
	" " B	"	"		3:12	5:05	113m / ✓	1 55 W	2" "		"		8.1v	-							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1980	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2037	HD 215227 A	22 06.2	-50° 48'	24/27 Sept	0522	0546	24m	2.22W	2nd Clear	2.84	150µ 1.2	67 5.0°	6.1	F5	NeA	30s	30m 3.14 V	IIaC Pa Ha 120m to 6.5	mostly 6.5E 19m	Cyg	Pa =
	" B	"	"		0549	0637	50m 70	3.14W	" Lovering				6.8	F5							
2038	HR 1412	4h 27.2	+15° 48'	"	0734	0745	15m 8.5m	1.02E	3rd/4				3.57	A7 III			45 2037				
	HR 1178	3h 47.9	+24° 05'		0800	0811	8m 3.5m	0.04W	"				3.85	F8 III							
	HR 1131	3h 42.9	+32° 13		0820	0830	3m 6m	0.28W	"				3.88	B1 III							
	HR 1099	5h 34.4	-05° 57		0842	0847	5m 2m	1.07E	"				2.52	O9 III							
	HR 2107	5h 58.1	-09° 22'		0902	0930	28m ✓	0.47E	3'				6.66	F2 IV							T8 HH4 W12
2039	AOS 15562 A	22h 01.4	-17° 04	27/28 Sept	0102	0158	56m	0.20E	1/3 Good	-	-	-	7.2	A2	-	-	-	IIaD Ba Bal 3km to 6.5	-	-	T11 H35 W12
2040	NGC 6637	18h 30.2	-32° 23	28/29	0014	0148	1m 30s	5.05W	2nd Some streaks	3.33	150µ 1.2	120 IT 7.4	8.19	F/GE	NeA	1s	-	IIaD	Mostly 6.5E	-	T8 H23 W15
	NGC 7078	21h 29.0	+12° 02	"	0203	0231	20m	6.50W					7.76	F/F6							T7m Int Extend
	NGC 6864	20h 05.0	-21° 58		0241	0328	4m	5.15W					9.5	F/G0							
2041	~~SA 69-28~~ HD 6548	01h 05.0	-21° 42	30/1	0557	0614	12m ✓	0.00W	3' Clear	-	120µ 0.8	-	10m 12.33	F GE	-	-	—	-	-	-	T2 H70 W15
	SA 69-28	01h 05.0	-27° 51		0624	0839	2h 15m ✓	3.34W	"		"		12.33	F GO V							
	" -103	01h 02.2	-27° 50		0845	0930	✓	4.24W	3rd Clear		"		11.13	?							
2042	SA 69-28	01h 03.9	-27° 46	1/2 Oct 1980	0658	0926	1m ✓	4.23W	2nd Clear	-	-	-	12.9	GO V	-	-	—	-	-	-	T1 H86 W15 T0 T2 H75 W10 5" Int 5th night
2043	NGC 6541	18h 06.6	-43° 44'	2/3 Oct 1980	0003	0108	6m ✓	3.05W	2/3 Clear	-	150µ 1.2	-	13.3 7.4	III/GO			—	-	-	-	
	NGC 6723	18h 58.2	-36° 43		0113	0306	11m ✓	4.14W	"		-		7.15 2.75	III/G8							Int Equipment - Co.
2044	HR 8111	21h 12.0	+30° 07		0338	0339	3m 12m ✓	2.30W	"		-		4.2	G8 II CN1	-	-		-	-		1/2 out of focus - Co. lines
	HR 645	2h 12.1	+8° 42		0355	356	5m 30s 15'	2.15E	"		"		5.25	G8 II CN-2							
2045	HD 44737	6h 02.8	-42° 22		0503	0602	57m ✓	3.54E	3' ✓	-	100µ Defoc. 5.6	20 5.0	9.5	G5 III	-	6s	30m 2.14V	IIaC			Comet ± ? full moon
	HD 44591	6h 19.6	-47° 12		0608	0643	35m ✓	3.31E	"		-	-	9.3	G5 V				Bal 3km to 6.5			
	HD 43396	6h 45.0	-52° 19		0657	0719	16m 8m ✓	3.13E	2nd				7.5	G2 IV							T0 H71 W15 2 Molecular 1 Bal. Mg Int. Mg Int. Weak dust ? Some grains emitted.
	HD 51119	6h 53.4	-41° 54		0728	0758	30m ✓	2.52E	2nd				9.5	G2 V							T0 H31 W6
2046	NGC 6626	18h 23.2	-24° 54	3/4 Oct 1980	0030	0230	2m ✓	1.34W	2nd Clear	-	150µ 1.2	IT "	15.6 7.48	F/F9	-	1s	-	IIaD	-	-	Pulsar on edge, weak quite Bright comet.
	NGC 6752	19h 08.6	-60° 02		0240	0440	2m 1.5m	5.47W	"		"		4.13 2.22	F/F7							
2047	HD 44475	6h 02.7	-42° 22		0535	0704	6m ✓	2.52E	"	-	100µ 5.6	Defoc. "	9.5	G6 III	-	6s	30m 2.14V	IIaC Bal 3km to 6.5			
	HD 42626	6h 08.8	-46° 16		0710	0740	30m ✓	2.14E	"				9.3	G5 V							
	HD 43371	6h 13.2	-41° 27		0753	0822	35m ✓	1.37E	"				9.2	F5 V							
	HD 47148	6h 34.3	-46° 38		0835	0918	43m ✓	1.08E	"				9.5	A7 V							T4 W10 H40

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	1980 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2048	NGC 6656	18h 35.1	−23° 55	4/5 Oct	0021	0301	2h 40m /	4:38 W	2" / clear	1T 3.33	150μ / 1.2	120 / 1.0	17.0 / 6.48	VII / F6	1s	Neb	–	IIa-D	Mw2-2, 7m, 67F	Cy	W8 T9 H22
2049	HD 221170	23h 28 5	+30° 19'	1980	0330	0352	2h 25m 10s / √	C:35 W	"	"	"	"	8.76	K0: II:	"	"		"			w/o 3' out of focus exist
	HD 26	00h 04.3	+8° 40		0358	0421	1h 14m / √	0:22 W	"				9.30	G5:							
2050	HD 4:8 45	6h 04.9	−40° 38		0518	0628	68m /	3:27 E	2" / clear	Direct "	100μ / 0.8	"	9.7	F2 V	6'	"	3m 2.14V	IIa O Baked 3½hr @ 67C	"	"	
	HD 54505	7h 06.0	−48° 13		0634	0725	51m /	3:36 E	"				9.3	F7 II							W6
	HD 55147	7h 08.5	−52° 20		0732	0813	41m /	2:45 E	2+" "				9.3	G0 III							
	HD 56380	7h 13.5	−51° 26		0818	0915	57m /	1:47 E	2" "				9.7	G8 V							T12 H16 W12
2051	NGC 6397	17h 38.2	−53° 40	5/6 Oct	0008	0213	2h 05m /	4h 52 W	2½" / clear	1T "	150μ / 1.2	"	19' / 7.3	IX / F5	Neb	1s	–	IIa-D			T12 H41 W7
	NGC 6752	19h 08 6	−60° 02		0221	0331	1h 10m / √	4h 40 W	"				46.9 / 7.2	VI / F7							
	NGC 104	00h 24.0	−72° 09		0341	0352	11m / √	0h 14 W	"				44 / 4.63	III / G3							
2052	HD 41651	6h 03.7	−44° 08		0458	0608	70m /	3h 40 E	2" / "	Direct "	100μ / 0.8	"	9.6	F0 V	Neb	5s	30m 2.14V	IIa O Baked 3½hr @ 69C	"	"	W21
	HD 49515	6h 45.7	−48 19		0615	0803	108m /	2h 28 E	"				10.3	F8 V							
	HD 50943	6h 52.7	−44° 54		0807	0849	42m /	1h 47 E	"				9.4	G6 III							T7 H4C W20
	HD 58656	7h 23 9	−43° 25		0854	0915	21m /	1h 53 E	"				8.7	F7/8 III							
2053	HD 191046	20h 05.8	+36° 10'	6/7 Oct	0209	0220	11m /	2h 35 W	2½" / clear	1T "	150μ / 1.2	"	8.2	K0 III w-1	"	1s		IIa-D	"	"	T6 H47 W22
	HR 8826 HD 214714	22h 38.6	+37° 29		0237	0238	30s 60s /	0h 16 W	"				6.7	G2. IV:							
	HR 8852	23h 16 1	+3° 10		0253	0254	6s 13s /	0h 05 E	"				4.6	K0 III Ca-1.5 Fe-1							
2054	HR 165	00h 38.2	+30° 45		0337	0338	6s 44s /	0h 43 E	" slewing	"	"		4.5	K3 III	"	"					Poor Focus
	HR 520	1h 44.4	+09° 03		0347	0349	5s 10s 20s /	1h 38 E	"				5.2	G8 III							
2055	HD 42189	6h 06.8	−40° 49		0457	0645	100m /	3h 03 E	2½" / clear	Direct "	100μ / 0.8	"	10.0	F6 V	"	5s	3m 2.14V	IIa C Baked 3½hr @ 69C			
	HD 43787	6h 15.5	−41° 38		0651	0735	44m /	2h 21 E	3" "				9.2	G3 V							
	HD 57302	7h 17.9	−43° 13		0741	0830	49m 5s /	2h 28 E	~2" "				9.6	G2 V							
	HD 65726	7h 57.6	−43 15		0735	0903	28m /	2h 35 E	" "				8.9	G4/5 II							
	HD 27608	4h 23.0	+21°42		0907	0920	13m /	1h 17 W	"				7.7	F8 V (MW)							T4 H45 W20
2056	NGC 6528	18h 03.4	−30° 05	7/8 Oct	0012	0238	2h 26m 5m /	4h 58 W	2½ clear	1T "	150μ / 1.2	"	11.3 / 11.04	V / G5	"	1s	–	IIa-D	"	"	T9 H45 W22
	NGC 7099	21h 39.2	−23° 15		0244	0329	45m /	2h 14 W	"				8.14 / 6.58	V / A7							
2057	HR 165	00h 38.2	+30° 45'		0400	0401	3s 6s 10s /	0h 15 E	"	"	"		4.5	K3 III	"	"	"	"	"	"	
	HR 520	1h 44.4	+09° 03'		0412	0413	5s 10s 20s /	1h 07 E	"				5.2	G8 III							
2058	HD 42148	6h 06.5	−41° 33		0515	0659	104m /	2h 45 E	2" / clear	Direct "	100μ / 0.8	"	10.2	F3 V	"	5s	5m 14.4V	IIa O Baked 3½ hrs @ 70°C	"	"	
	HD 47330	6h 34.9	−48° 27		0705	0746	41m /	2h 26 E	"				9.4	G1 V							

NUMBER	OBJECT	R.A.	DEC.	1980 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2058	HD 50785	6h 52.0	−42° 29	7/8 Oct	0751	0757	6m	2h 32E	<2" clear	Direct 3.33	100μ 0.8	126 1.0	7.3	F5 IV/V	N.A	5s	30" @ 14V	IIaO & IIaD	Ref 2 7m, 6.1"	Cy	
cont'd	HD 51393	6h 54.1	−48° 40	(cont'd)	0803	0900	57m	1h 30E	1.5 "				9.9	F0/3 III							
	Cr 182.1	4h 59.3	+14° 21		0907	0914	7m	0h 39W	"				6.7	G2 IV-V							T 15 H 39 W 25
2059	NGC 6638	18h 29.6	−25° 31	8/9 Oct	0015	0233	2h 10m 5m	4h 31W.	2" clear	IT "	150μ 1.2	"	2:3 16.29	III 82	"	1s	—	IIaD			T 12 H 40 W 12
	(HR 6313 1 pkg	21h 43.5	+17° 13	1980	0254	0258	7m, 1h 45m 20	1h 42W	"				5.5	G5 IIIe							
2060	HR 660	2h 15.07	+34° 08		0402	0412	1h 2m 2m	1h 37E	2" "	Direct "	100μ 0.8	"	5.48	G0 V	"	5	30" @ 14V	IIaO			
	HD 44936	6h 21.6	−46° 25		0423	0520	57m	4h 33E	2 "		-		9.2	A5 V				Ref 7, 1.5 & 6.8"			N16
	HD 48632	6h 41.3	−47° 22		0525	0601	36m	4h 11E	"				8.2	F3 II							
	HD 51119	6h 53.4	−41° 54		0607	0706	59m	3h 18E	"				9.5	G2 V							
	HD 44591	6h 19.6	−47° 12		0712	0751	39m 45	2h 00E	rain				9.3	G0 V							
	HD 59367	7h 26.9	−44° 46		0756	0842	46m	0h 15E	2.5" "				7.3	G5 II							
	HD 57001	7h 16.6	−46° 40		0854	0907	15m 13	1h 42E	2" "				8.1	G8 IV							T 9 H 46 W 20
2061	NGC 6362	17h 29.3	−67° 03	10/11 Oct	0018	0420	4h 0m 8m	7.3W	3" clear	IT "	150μ 1.2	"	8.5 2.3	V A	"	1s	—	IIaD			Incl. 2 guide wt. Lost 1 to penalty 11 Bucks. T 4 H 41 W 12 W 35
2062	HD 47922	6h 38.3	−41° 30		0738	0829	51m	1:33E	2.5" clear	Direct "	100μ 0.8	"	9.5	A3 V	"	5s	30" @ 14V	IIaC			Stopped by cloud & poor C setting W 26
	HD 42626	6h 08.8	−46° 17		0836	0820	41m	0:13E	2.5" "				9.3	G5 V				Ref 3½ hr & 6.2			T 7 H 36
2063	NGC 6981	20h 52.3	−12° 36	11/12 Oct	0020	0410	3h 50m 6m	3:35W	3" clear	IT "	150μ 1.2	"	5.1 16.24	IV G2	Sky Cloud!	1s	—	IIaD			Bright stars avoided. T 11 H 36 W 17
2064	SCP 89-173	1h 03.7	−27° 47		0454	0755	3h 00m	3.32W	2.5" "	"	100μ 0.8	"	12.93	F8 V	"	1s V	—	"	"	"	W 13
	SCP 89-103	1h 02.2	−27° 50		0800	0856	52m	4:35W	3" "		"		16.13	G5 V							T 11 H 36 W 13
	Cr 182.1	4h 59.3	+14° 21		0907	0915	4m 30s 1.5m	0:55W	2.5" "				6.7	G2 II-III							
2065	NGC 6652	18h 34.4	−33° 01	12/13 Oct	0005	0120	75m 110	3:31W	2.5" clear	IT "	150μ 1.2	"	2.3 9.86	VI G2	"	1s	—	IIaD			T 14 H 29 W 12
	NGC 6541	18h 06.7	−43° 40		0125	0215 0225	50m	4:53W	-		-		2.3 7.7	III G0							
	HR 8626	22h 38.6	+37° 27		0228	0240	4h 5m 6m	0:46W	"		"		6.7	G3 III:							
2066	SCP 89-104	1h 02.4	−27° 50		0312	0712	4h 8m	2:55W	"	"	100μ 0.8		13.5	G2 IV w F0	"	"	—	"			
	SCP 89-41	1h 07.8	−27° 48		0745	0843	50m	4.23W	"		" 0.8		11.4	—							
2067	HR 1784	5h 23 C	−7° 49		0904	0908	3m 20s 1.5m	0:36W	"		"		5.1	G5 III Ca-0.5	"	"	"	"	"	"	
	HR 1543	4h 48.5	+06° 55		0912	0914	1m 30s 45s	1:10W	"		"		3.45	F6 V							T 12 H 35 W 14
2068	SCP 89-287	1h 01.9	−27° 45	13/14 Oct	0004	0145	101m	2:30E	1.5" clear	"	"		12.2	~F4 V	"	"	=	"	"	"	T 14 H 30 W 8
	" -219	0h 55.9	−27° 49		0153	0353	120m 12	0:15E	"		"		12.4	~G5 V							
	HR 660	2h 15.7	+34° 08		0403	0410	8m 30s 45s	1:20E	"		"		5.5	G0 V							
	HR 1279	4h 06.3	+15° 06		0420	0425	15m 30s 60s	3:55E					6.4	F3 V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1980 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2069	HD 34328	5^h 12.6	−59° 41	(13/14 Oct)	0525	0620	55m /	2:05E	1.5+ clear	Direct 3.33	100µ / 0.8	120 / 7.0	9.6	G1 wA2 V	NeA	5s	30m / 2.4V	IIaO	Mop-2 7m, 6.4F	Cy	
	HD 24202	3^h 47.0	−64° 23	1980	0626	0726	60m /	0:28W	"				9.8	G1 V F6							
	HD 52758	6^h 59.3	−41° 29		0737	0827	50m /	1:45E	"				9.6	G6/2V F3/5							
	HD 56288	7^h 13.3	−51° 16		0831	0914	43m / 60	1:11E	"		0.6		9.9	G0 V(w)							T12 H23 W12
2070	HR 7479	19^h 39.4	+17° 56	14/15 Oct	0008	0012	4m 9s 18s /	1:23W	3" clear	IT "	150µ / 1.2	"	5.1	G1 II	"	1s	—	IIaD	"	"	T14 H30 W10
	HR 7488	19^h 40.3	+17° 24		0018	0022	6m 12s 24s /	1:34W	"		"		5.4	G7 III CN2							
2071	NGC 1261	3^h 12.0	−55° 20		0049	0419	9m 45s /	2.00E	2" "	"	"		4.1c / 9.5	II / F8	"	"		"	"		no bright giants included.
	NGC 1851	5^h 13.6	−40° 04		0426	0512	45m /	3.10E	"		"		11.5 / 1.72	II / F5							nucleus » eg bright giants W:7
2072	HR 1784	5^h 23.1	−7° 52		0546	0551	4m 0s 18s /	2:40E	"		"		5.1	G8 III CN 0.5	"	"	2m /	"			
	HR 1907	5^h 35.8	+9° 16		0557	0602	6m 10s 26s /	2:43E	"		"		5.04	K0 III CN2			"				
2073	HR 544	1^h 52.0	+29° 30		0638	0643	30s 60s 15s /	1:43W	3" "	Direct "	100µ / 0.8	"	3.9	F6 IV	"	5s	30m / 0.4V	IIaO		"	
	HR 339	1^h 08.8	+19° 33		0650	0656	6m /	2:37W	"				~6.5	G0 V				Baked 3hr 2 days			
	HR 510	1^h 44.1	+9° 03		0708	0714	45s 75s 105s /	2:22W	2½ "				5.2	G8 III							
	HD 27808	4^h 22.9	+21° 41		0722	0735	13m /	0:04W	"				7.7	F8 V							
	HR 1279	4^h 06.4	+15° 04		0740	0744	4m /	0:31W	"				26.4	F3 V							
	HD 56288	7^h 13.3	−51° 16		0753	0913	1h 20m /	1:08E	2" "		"		9.9	G0 V(w)							T13 H26 W12
2074	ADS 15270 A	21^h 43.3	+28° 40	15/16 Oct	0022	0032	10m ✓	0:15E	2" clear	2.84	50µ / 1.2	67 / 5.05	4.V 4.7	F4 V	"	30s	"	"	m-s 15m 5' 67°F	"	T13 H26 W20
	" " B	"	"		0037	0120	43m ✓	0:32W	1.5 "				6.1	F2 V				Baked 3½hr 160° - Al light heater			Do Tract ≡ 5m Gaussian
	ADS 15562 A	22^h 01.4	−17° 04		0139	0242	63m /	1.37W	1.5 extra wisps				7.V 2	~G5 III							
	15562 B	"	"		0253	0345	52m /	2.40W	1.5 some clouds				7.V 4	~A0							Do Tract
	ADS 16979 A	23^h 45.0	−18° 47		0404	0414	10m /	1:25W	1.5 "		0.5		5.V 8	~A5							
	" " B	"	"		0416	0441	25m /	1:53W	1.5 "		"		6.V 8	—							
	ADS 1457 A	1^h 49.0	+22° 11		0509	0533	24m 30	0:41W	1" "		"		6.V 2	F5							
	" " B	"	"		0535	0630	55m /	1:32W	" "		"		7.V 4	—							
2075	ADS 3954 A	5^h 21.0	−24° 47		0708	0719	11m /	1:07E	1.5 "		"		5.5	G0	"	"	"	"	"	"	Do Tract.
	" B	"	"		0724	0744	20m /	0:40E	" "		"		6.7	A3							
	HD 27808	4^h 23.1	+21° 42		0802	0912	70m ✓	1:46W	-2" "		"		7.66	F8 V							T11 H31 W22
2076	ADS 15753 A	22^h 13.2	−21° 08	16/17 Oct	0015	0030	15m /	0:44E	1" clear	2.85	"	"	5.V 7	G8	"	35s	"	"	"	"	T13 H27 W12 FWHM limited 1" = no contam.
	" " B	"	"		0035	0105	30m /	0:08E	" "				7.2	—							
	ADS 15934 A	22^h 25.4	−16° 50		0118	0137	19m /	0.11W	"				6.4	G0							5" sep pair
	" " B	"	"		0139	0202	23m /	0:36W	"				6.6	G0							Nuw

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1980 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2076 (cont'd)	ADS 15971 A	22h 27.8	−00° 07	4/17 Oct	02:12	02:15	3m	01 46 W	2"/clear	2.85	50μ / 1.2	67 / 505	4.4	F1 II	N+A	25s	30"D 14"	IIaO Baked 3½ hr D 68%	1mm / 1.5 / 15m	Cy	P1:5, seeing variable, 1.5" N + S spike — 2½ arcsec N # 2 spike — no contam!
	" " A	"	"		02:21	02:24	3m √	01 58 W	1" "		"		"	"							
	" " B	"	"		02:27	02:31	3½m	1 10 30 W	1" "				4.6	F3 II							< 2.5" E + W star comp. Obs. < 4.5 arcsec AR 02 com 1 45° E 22h 02m 20s, 2° 24' Early
	ADS 15988 AB	22h 29.0	+04° 19'		02:43	02:53	10m	1 12 40 W	1.5" "				5.8	F5 II							
	ADS 1615 A	2h 01.0	+02° 40		03:24	03:27	2½m √	1 35 E	" "				4.3	Ap							Dr Trail; no contam.
	" " B	"	"		03:34	03:41	6½m √	1 21 E	" "				5.2	Am							
2077	ADS 1697 A	2h 11.2	+30° 12		4:34	4:56	22m /	0 15 W	" "				5.2	G0	"	"	"	"	"	"	Dr Trail
	" " B	"	"		05:06	5:47	41m √	0 36 W	1.5"-1" "				6.6	—							
	ADS 2122 A	2h 46.3	+19° 17		06:02	07:26	84m √	1 40 W	1" "				7.4	G0							
	" " B	"	"		07:27	08:52	85m 10	3 07 W	" "		0.8		8.3	—							
	IR 0346	4h 18.4	+15° 37'		0855	09 13	2h 2m 25s 5 √	1 15 55 W	2" "		1.2		4.7	K0 III + A							T = E with E
2078	HD 217096	22 57.5	−35 37	17/18 Oct	00:41	00 57	20,40603	0 55 E	2"/clr	3.33	100/M/0.8	120/70	B 7.0	F8 III-IV			—	IIaO	+5,+4,+3	J Plate M-S, E = 2 Red/White T = 3, H = 2.5, N = 0
	215573	22 48.7	-80 13		01:10	01:15	6m 15m 24 X	0 32 E			1.6		5.8	G0 III	N+A	1s			-1, -2, -3		
2079	HD 219987	23 03.9	-35 54.8		02:07	02:14	7m / 60m	0 13 W			1.6		8.2	M2 V					+5		
	HD 221148	23 28.0	-04 38		02:32	02:34	10s / 120s	0 10 N			1.6		7.5	K3 III					+3		
	HD 10824	01 45.0	-05 50		03:10	03:11	75s / OK	0 20 E					5.54	K1 III					+1		
	HD 1013	00 13.6	+20 06		03:31	03:32	65s / OK	0 15 W					4.6	K1 III	N+A	1s			-1		
2080	HD 224964 225119	00 00 9	-30 47		04:36.5	04:37	6m 5s / OK	1 45 W					4.11	A3 V					+5		
	HD 235	00 06.1	-30 41		04:50	04:54.5	4m 5s / OK	1 55 W					8.77	A1 Vn					+4		
	HD 225282	00 03.9	-30 22		05:05.5	05:04	3m 2s / OK	2 10 W					5.36	—					+2, +1		
	HD 225264	00 03.8	-29 45		05:16	05:14	3m / OK	2 20 W					5.36	A0 V					-1		
	HD 225206	00 03.5	-29 36		05:25	05:29	2m /	2 35 W					7.71	A7 Ven	N+A	1s			-3		
2081	HD 16160	02 35.1	+00 49		05:54	05:59	1m / 10s OK	00 20 W					6.14	K3 V					5		
	HD 20630	03 18.4	+03 13		06:11	06:11	15s OK	00 05 E					5.50	G5 V					-3		
	HD 26965A	04 15.5	-01 31		06:27	06:27	15s OK	00 45 E					4.85	+1 V					-1		
	HD 26911	04 14.7	+15 21		06:46	06:47	5s / 65s OK	00 15 E					6.2	F3 V					+1		
	HD 27397	04 17.9	+19 06		06:57	06:57½	24s OK	00 15 E					5.57	F0 IV	N+A	1s			+3		
2082	NGC 1662-3	04 47.7	+10 54.6		07:45	07:54	9m / 6K	00 10 W					9.19	—					-5		
	NGC 1662-2	"	"		08:00	08:23	23m / 4 str.	00 40 W					10.63	—	N+A	1s			3		

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 295

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	1980 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV. POS N	OBS.	REMARKS
2083	HD 182040	19 22.2	-10 44	18/19 Oct	01 03	01 16.5	7m35s OK	2 55W	3"/Cirrus	3.33	100µ/0.8	120/7.0	B 8.16	C1,2			—	IIaF, M-5	+5	CRA/W.Z	T=12°C, H=32%, W=20 mph
	224113	23 54.3	-32 02		01 27	01 30.5	30s/1m OK	1 15E	"				6.01	B6 V					+3, +2		
	224112	"	"		01 35.5	01 40	1m-10s/ OK	1 05E	"				6.73	B8 II					-1, -2		
	HD 214615	22 16 2	+00 11		01 58	01 58 10	10s/sl. wk	00 15E	"				4.61	KOIIIb	[redacted]	[redacted]			- 4		WEAK. T [illegible] .2m mph
2084	HD 224990	00 01.3	-29 49		02:22	02:22:10	10s/sl. wk	00:30E					4.89	B5V					+5		circle clearing
	HD 225119	00 06 6	-28 32		02 37	02 40	2m/	00 15E					5 14	-					+ 3		[illegible]
	HD 225200	00 03.4	-29 23		03:04	03:05	50s 45s/ OK	00:10W					6 40	A6 V					+ 1		
	HD 225206	00 03.5	-29 30		03:10	03:12	2m/ OK	00 15 W					7 71	F1Vn					- 1		
	HD 141	00 05.2	-29 16		03 20½	03 23	2½m/	00 25W					7.87	A0Vn					[redacted] - 3		T 16
	HD 224818 ~~225195~~	00 00.0	-30 32		03 53	04 13	20m/ OK	01 20W					10 07	A0	Ne 4	1s			[redacted] -5		14 - 25 g didn't [illegible]
2085	HD 224849	00 01 7	-09 22		04 44	04 44½	12s/ OK	01 40 E					4 62	K2V					+ 5		[illegible]
	HD 219615 ~~224995~~	22 16 2	+00 11		04 58	04 58	15s/sl. str	00 50 W					4 61	KOIIIb	Ne 1	1s			+ 3		Shuttle [illegible]
2086	NGC 1662 7	04 47 4	+10 56		07 24	07 45	17m/ OK	00 05W					9 67	-					+ 5		
	NGC 1662-6	"	"		07:50	08:06	16m/ OK	00 27 W	1-2"/cl.				9 63	-					+ 3		
	NGC 1662 12	"	"		08 17 5	08 38	35m/ OK	01 02 W					10 49	-	Ne 1	1s			+ 1		EXPOSURE HALTED DUE [illegible]
~~2087~~	~~NGC 1662-11~~	~~"~~	~~"~~		~~06:08~~	~~07 25~~	~~30m/~~	~~00 05 E~~	~~3 cirrus.~~				~~11.01~~						~~+5~~		~~T=11°, H=27, W=15~~
	~~NGC 1662-13~~	~~"~~	~~"~~		~~07:33~~	~~07 53~~	~~50m/~~	~~01 20 W~~					~~11 04~~						~~+3~~		~~T: 10 12 [illegible]~~
2087	HD 178322	19 03.7	-41 54	20/21 OCT	00:11	00 11½	20s/ OK	02 15W	2" clear	3.32	100µ/0.8	120/7.0	5.78	B5V					+5		CK T=10 H=49°C W=20 mph
	HD 182180	19 23.3	-27 54		00:22	00:23½	24s/	02:15W	"	"	"	"	5.94	B2Vn					+3.		NOT ON SLIT
	"	"	"		00:24	00:24½	"	02:18W	"	"	"	"	"	"					+1		BLOCKED IN DEC!!
	"	"	"		00:26	00:26½	1s/OK	02:20W	"	"	"	"	"	"					-1		FINITUDE: OK
	HD 188001	19 51 5	+18 37		00 31½	00:38½	1m/strong	02 02W	"	"	"	"	6.22	CBIV					- 3		[illegible]
	HD 189319	19 57 9	+19 26		00 43	00 43	6s/wk.	02 00 W	"	"	"	"	3 50	A0 III					- 5		[illegible]
2088	HD 191464	20 10 0	-36 08		01.06	01 07	26s/ OK	02 16W					6 19	K2V					[redacted] +2	slightly red	DEC SLIPPAGE AT [illegible]
	HD 198174	20 48 2	-25 51		01 20	01:20½	21s/ OK	01 47W					5 71	B1 III D					-2		[illegible]
	HD 199728	20 58.5	-19 06		01:31½	01:32	20s/ OK	01:50W					6 23	A0 III	Ne 4	1s			- 4		OK
2089	HD 205520	21 20 9	-81 46		01 57½	01 58 ½	1m/ OK	00 40W					6 50	B3 IV					+ 4		T-9, H=45% +5 OK
	HD 209522	22 03.5	-26 55		02:17	02:17	21s/sl. wk	01:30W					5.74	B4 IVn					[redacted] +1		DEC slipped OK
	HD 220657	23 24.4	+23 18		02:27	02:27	10s/sl. wk	00:17 W					4.51	F8III					- 1		OK
	HD 221176	23 38 6	+30 20		02 35	02 50	15m/strong	00 40W					5 91	K0 IIp	Ne 4	1s			- 3		Setting 3" Current

NUMBER	OBJECT	R A	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2090	HD 373	00 17.1	-30 09	20/21 OCT	03:27	03:45	18m / OK	00:55 W	2"/0.8	3.33	100μ/0.8	120/7.0	B 10.22	--				IIa D	M-5	C.R.L	+5 T=V. OK H=4.8
	~~HD 225119~~	~~00 02.6~~	~~-28 42~~		03:57	04:00	3m2 /	01:15W	"	"	"	"	8.74	--							+.3 STRONG ★ !
	HD 225119	00 02.6	28 32		04:01	04:10	9m / OK	01:25W	"	"	"	"	8.14	--							+1 OK
	HD 225077	00 02.3	-31 20		04:19	04:25	6m / Hazy	01:40W					8.98	A2V							-1
	HD 2037	00 23.6	-27 02		04:36	04:39½	3½m / OK	01:30W					8.36	A1 III	NeA	1s					+.3 OK
2091	NGC 1662-15	04 47.4	+10 55		05:23	06 48	85m / OK	00:45E					11.38	-				IIa D	M-5		+5 OK
	NGC 1662-18	"	"		06:57	09:42	105m / OK	01:10W					11.85		NeA	1s					+3 OK
2092	HD 191059	20 10.0	36 08	21/22 OCT	23 36½	23 57	30s / slight	01:05 W		3.33	100μ/0.8	120/7.0	6.19	K2V				IIa D	M-5	C.R.L	+5 T=V. OK H=4.8 moon 3/4 full
	HD 189319	19 57.9	+19 26		00:07	00:08	6s.9 / 7m, 45s / 45s OK	01:30W		"	"	"	3.56	A0 III							+3.1
	HD 188001	19 51.3	+18 37		00 15	00 17		01:45W					6.23	CEIT							-1.3
	HD 194317	20 23.1	+32 07		00:25	00:26	56s / over exp	01:20W					5.11	K3 III		-					5
2093	HD 188512	19 54.1	+06 21		00:49	00:49:10	9s / OK	02:15W		3.33	100μ/0.8	120/7.0	4.57	G8 IV				IIa D	M-5	C.R.L	+5
	HD 188269 EAST	20 47.8	+17 46		01:11½	01:31½	20m / SL. Over	02:05W					9.6	C1,1							+3
	HD 195241 WEST	"	"		01:35	01:55	20m / SL. Over	02:27W													+1
	HD 217987	23 03.9	-35 55		02:17½	02:34	6½m / OK	00:40W					8.82	M2V							-2
	HD 215573	22 48.7	-80 13		02:37	02:37	15s / OK	01:05W					5.18	B6 IV							-1
2094	HD 562	00 04.0	-25 59		03:05	03:07	2m / OK	00:10W	2" / FAIR	3.33	100μ/0.8	120/7.0	1.78	A3 Vn				IIa D	M-5	C.R.L	+5
	HD 8130	01 19.4	-36 19		03:17½	03:19	1½m / OK	00:40E					7.53	A1V							+3
	HD 6668	01 06.3	-21 02		03:29	03:29½	33s / OK	00:18E					6.53	A7V							+1
	HD 6721	01 08.7	-24 23		03 40	03 51	11m / OK	00:05W					9.74	F0V							-2
	HD 5529	00 55.7	-25 25		04:06	04:07	1¼m / OK	00:30W					7.33	A5V	NeA	1s					-3
2095	HD 22049	03 31.7	-09 32		04:37	04:37	9s / OK	01:35E	"	"	"	"	4.62	K2V				IIa D	M-5	C.R.L	+5
	HD 23585	03 46.0	+23 56		05:11	05:18	7m / OK	01:10E					8.67	F0V							+3
	~~HD 23586~~ HD 23586	03 48.3	+24 12		05:26½	05:31	4½m / OK	00:36E					5.15	A5V							+1
	HD 23948	03 48.8	+24 18		05:39½	05:41	2½m / OK	00:45E					7.62	A2V							1
	HD 23873	03 48.2	+24 20		05 51	05 52	1m / under exp	00:55E					6.56	B4 5V	NeA	1s					-3 NEARNESS CAT = NBL
2096	NGC 1662-5	04 47.4	+10 55		06:25	06:36	11m / OK	00:40E					9.46	-				IIa D	M-5	C.R.L	+5
	NGC 1662-11	"	"		06 42½	07 27½	45m / OK	00:01W					11.01	-							+3
	NGC 1662-14	"	"		07:35½	08:36½	51m / OK	01:00W					11.19	-							+1
	NGC 1662-7	"	"		08:24	08:42	13m / OK	01:16W					9.67	-	NeA	1s					-1

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2097	SAC 246985 FIELD #2	21 20 1	-51 50	27/28 OCT/80	00 19	00 40	1¼m / OK	00:22W	2½"/lk	3·33	100µ/0·8	120/7·0	B 6·9	~~B0~~ ?				IIaD	M-S	CRd	T=12°C, H=40% WIND NW +5
	SAC 246985 FIELD #3	"	"		00 28	00 50	1½m / CK	00:50W		"	"	"	7·2	A3							ACTUAL TIME IN DOME +3
	SAC 246985 FIELD # 1	"	"		00:4	00 35	1¼" / CK	00:38W					6·9	A0							HAZE IN SW +1
	SAC 246985 FIELD #10	21 24·8	-52 42		00:53	01:05	12m / OK	01:05W					7·6	F8							-1
	SAC 246985 FIELD # 12	21 29 C	-52 14		01:11	01:19	8m / 8" wk	01:20W					9·0	-	NeA	1s					-3
2096	HD 22456	~~21 36·6~~	~~-05 40~~		~~02:23~~	~~02:24~~	~~22 CLOUDS~~	0:20E					~~7·73~~	~~CK1b~~							WIND INCREASING: DIFFICULT TO PAN +5, +3, +1
	SKY	~~20 47 8~~	~~-34 28~~		~~02:50~~	~~03:00~~	~~HAZY~~	0:35E					-	(F-G)							
	HD 22252	03 32·5	-66 54		03:19	03:20	3/4m	02:55E					5 7L	B3 V	NeA	1s					-3
2099	HD 22879	03 57·3	-03 18		03:58	04:00	2m / WISPS	02:35E	2" CLR / LT HAZE	"	"	"	7·23	uknF				IIaD	"	CRd	+5
	HD 25631	04 02·5	-20 11		04:19	04:20	36s / OK	02:20E					6 29	B2 5V						NOT E MEAN	+3
	HD 27534	04 20·4	+18 23		04:41	04:43½	2½m / V. OVER	02:15E					7 21	F5V							+1
	HD 27749	04 22 3	+16 44		04:55	04:55½	36s / OK	02:03E					5 94	F5III							1
	HD 30652	04 48·7	+06 55		05:05	05:05	35 / poorly trailed	2:20E					5C4	FOV	NeA	1s					3
2100	HD 36485	05 31·0	-00 19		06.31	06:32	1m / OK	1:35E					6 87	B2 VN				IIaD	M-S	CRd	
	HD 36395	05 30·5	-03 40		06:46	07 01	15m / wk	01:05E					9 44	M1V							
	HD 37016	05 34·1	-04 26		07:13½	07:14	24s / OK	00:55E					5 95	B2 5V							1
	HD 37017	05 34·1	-04 31		07:17	07:17½	30s / OK	00:52E					6 38	B2Vk	NeA	1s					-?
2101	NGC 1662-4	04 47·4	+10 55		08:00	08:12	12m / OK	00:50W					9 44	-				IIaD	M-S	CRd	+5
	-9	"	"		08:14½	08 35½	21m / CK	01.10W					10 01	-							+3 T=10, H=40, W=26
2102	SAO 246985 FIELD # 1	21 21 9	-51 42	25/26 OCT/80	00:40	00 42	2m / OK	0:55W	2-3" SOME CIRRUS	3·33	100µ/0·8	120/7·0	7 9	-				IIaD	M-S	CRd	+3
	FIELD #2	"	"		00:46	00:47¾	105s / OK	1:00W	~4"	"	"	"	7 3								+1
	FIELD #3	"	"		00:55	01:00	5m / lk	1:15W					-3 5								-1
	FIELD #5				01:04¾	01:20	15m / OK	1:35W					-9 5	-							-3
2103	SAO 246985 FIELD #6	"	"	"	01:40½	02:10½	30m / OK	2.25W	CLOUDS WORSENING: WIDE RISE	"	"	"	-10·2	-				IIaD	M-S	CRd	+5 SEEING AWFUL!!
	HD 9673	01 34 6	-27 19		04:52½	04 56½	4m / CK	1.00W	STILL SOME CLOUDS	"	"	"	8 15	A5?						SEEING LOOK	+3 LOST 2h DUE CLOUDS.
	HD 5737	00 58 9	-29 20		05:05	05:05	65s / lk	1:45W					4·15	B8III?							+1
	HD 4065	00 41·8	38 32		05 15	05 15½	365 / wk	2·10W					6·02	40 V							-1 NOT ON FINDING CHART.
	HD 6178	01 01·4	-31 39		05 23½	05·24	245 / wk	2·00W					5·60	A2V	NeA	1s					-3 CLOUDY, OPEN

NUMBER	OBJECT	R.A.	DEC	DATE U.T	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB F? N	EMUL	DEV	OBS	REMARKS
2104	SAO 146885 FIELD #4	21 19·9	-51 32	26/27 OCT 86	23 54½	00:11½	12m / OK	0:30W	4"/scattered clouds	3.33	100µ/10"	120/7·0	4·0	KO				II-aD	M-S	CRd	T=15°C, H=70, W=15 mph 45 DUE WEST
	FIELD #7	21 20·6	-51 54		00:22	00 57	20m / OK	1 17W	"	"	"	"	10 1	G5							+3
	FIELD #21	21 21·8	-51 16		01 10	01:15	5m / —	1:35W	3"/cld	"	"	"	8·0	F5							+1 WRONG STAR
	FIELD #21	21 22·0	-51 05		01:20	01:25	5m / OK	1:45W	"	"	"	"	8 0	F5							-1
	FIELD #14	21 20·9	-52 27		01:33½	01:38½	30m / OK	2 15W	"	"	"	"	9 1	KO	Ne 1	1s					-3
2105	HD 1999	00 24·4	-37 24		02:31	02:36	5m / OK	0 10E	"	"	"	"	8·19	B9				I-aD	M-S	CRd	+5 cloud rising
	HD 71	00 04·3	-21 23		02:48	02 54	6m / OK	0 35W	"	"	"	"	3 53	B9Va							+3 MOONRISE HEAVY CIRRUS!!
	HD 5618	00 56·8	-39 36		03 04½	03 15	11½m / OK	00 03E	"	"	"	"	4·03	A5V	Ne 1	1s					+1 T=15, H=70, W=W CLOUD!!
2106	SAO 214785 FIELD #15	21 19·1	-52 47	29/30 OCT 86	00:08	00 25	17m / OK	0:55W	5"/cld	3.33	100µ/10"	120/7·0	10 0	-				II-aD	M-S	CRd	T=8 (14) 10°C, SSE, W=10
	#13	21 20·8	"		00:28	00 31	11m / OK	1:10W	"	"	"	"	9·5	-							+2
	#19	21 14·4	-51 04		00:47¾	00 54¾	7m / OK	1 31W	"	"	"	"	9 0								+1
	#16	21 19·6	-52 41		01:01	01.11	10m / OK	45W	"	"	"	"	9 4	-	Ne A	1s					-2
2107	SAO 214885 FIELD #8	21 24·9	-51 49		01:30¾	01 43½	12m / OK	2 10W	"	"	"	"	9 6					II-D	M-S	CRd	+5
	#23	21 24·7	-51 16		01:49¾	02 04¼	15m / OK	2 30W					9 6	~~A2V~~							+3 TOO DIFFICULT
	HD 225047	00 01·9	-36 16		02:26½	02:36	5½m / OK	0 20W					5 45	A2V							+1
	HD 225100	00 02·3	-36 02		02:56½	03 05½	4m / OK	0 55W	3"/cld				9·43	-							-1
	HD 3999	00 41·2	-31 58		03:14	03:24	10m / OK	0 35W					4 51	-	Ne 1	1s					-3
2108	HD 8499	01 22·6	-35 24		03:51	04:09	15m / OK	0 35W					10 03	-				I-aD	M-S	CRd	+5
	HD 9027	01 27·5	-33 05		04:16	04:25	9m / OK	0 50W					9 98	-							+3
	HD 7652	01 15·2	-24 00		04:32	04:50	15m / OK	1 25W					10 15	-							+1 SEEMS BRIGHTER THAN IT SHD
	~~HD 22879~~	~~03 57 0~~	~~-03 15~~		~~05:12½~~	~~05 14~~	~~12m~~	~~2 50E~~					~~7 51~~	~~OK In F~~							~~-1~~ SEEMS FAINTER THAN THAT!!
	HD 27808	04 22·7	+21 45		05:26	05 29	3m / OK	0 20E					7 66	F8V							-3
2109	NGC 1662-10	04 46·7	+10 58		05:50	06 20	2m /	0 35E	"	"	"	"	10 49	-				II-aD	M-S	CRd	+5
	NGC 1662-101	04 48·1	+10 10		06:34	07 34	60m /	0 40W	"	"	"	"	11 26		N.A	1s					+3 T=9°C, H=50% NE WIND
2110	SAC 148208	01 46·0	-13 59	04/05 NOV 86	04:00	04:13	80", 140", 240"	0 45W	>4"/ Cirrus	3.33	100µ/10"	120/7·0	6 8	B9			+5,4,3 ~~+5~~	II-aD	M-S	PGL/m12	T=14°C H=56% Early uniform cirrus which cleared on via Sky.
	SAC 148408	02 27·9	-11 26		04:33	04:48	155, 120, 5m	0 35W					7.0	F2			+1,-2				
	SAC 148310	03 09·9	-11 12		05:05	05:20	105, 215, 7m	0 25W					7.2	G5			-4,-5,-6				
2111	NGC 1976	05 32·3	-5 25		06:15	06:26	40, 80, 160	0 55E					~~5 4~~	~~G5~~	N.A	1s	+2,+3,+2				IN NGC 1976
	~~SAC 133244~~	~~05 32·0~~	~~-5 28~~		06:46	07 05	19m	0 15E					~~4 6~~	~~A~~	N.A	1s	-1				
	"	"	"		07:08	07:19	11m	0 00W									-3				T=12°C H=70%
	"	"	"		07:23	07:39	16m	0 20W									-5				

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR.	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	~~CALIB~~ POSN	EMUL	DEV	OBS	REMARKS
2112	~~SAO 186618~~	18 16 9	-24 36	05/06 NOV 80	00 44	00 56	12m /	5:00W	3"/Clr	IT 333	100μ/0.8	120/7.0	8.9	K7			+5	II ~~IIIaD~~	M-S	W I Z	T=11°C, H=40%
	?	18 16 4	-24 41		01 05	01 27	22m	5:30W'				0.6			N.A	1S	+3				* In IT eyepiece
2113	NGC 7009	21 03.0	-11 28		02 25	02 39	30S/6/14C 5E	2:40W'	2-3'			0.8	12,-5'	P1			+5,4,3 2			P&L/W I Z	saturn nebula
	NGC 1535	04 13-3	-12 48		03 17	03 56	2 7 8 1 16	2:00E					12,-5'	P1			-1,-2,-3 -4				
2114	NGC 1499	05 35.5	-06 45		04 46	05 25	10, 20½, 5	1:50E					1'	PrS	N.A	1S	4S,4,3				
2115	1982 UT	18 18.4	-24 44	06/07 NOV 80	00 21	00 31	10m. Good / slightly Smoky	4 36W	3"	333	100/0.8	120/7.0	~9	NOVA			+5	II IIIaD	M-S	W I Z	T=10°C H=37% cirrus cloud in SW
	"	"	"		00 33	00 53	20m / smoky	4 58W					"	"	N.A	1S	+3				
2116	1982 UT	"	"	~~07/08~~ NOV 80	00 23½	01 12½	47m / weak	5 24W	3-4"	MIRROR 3.33	100/0.8	120/7.0	~9	"	N.A	1046S	+10	II IIIaD	Mt 2	W I Z	T=9°C H=74% ALSO 3 others in HSC
2117	"	"	"	IC III NOV 80	00 23	00 32	9m / weak	4 52W	3"	IT 3.33	0.8						+5	IIaD	M-S	W I Z	Moonquake close
~~2118~~	"	"	"		00 34	23 27 00 48½	14½m / weak	5 09W			1.2				N.A	1S	+3				
2118	"	"	"	11/12 NOV 80	00 30⅓	23 00 40⅓	16m / weak	5 05W	3"								+5			W I Z	T=11 H=40
	"	"	"		00 42	23 30 01 47	5m / slightly weak	5 12W							N.A	1S	+3				
2119	NGC 7089	21 32.4	-00 55		01 20½	00 01 3 01 30½	10m	2 41W						GCL			+5			P&L	
	"	"	"		01 33	00 01 26 01 43	10m	2 54W									+4				
	NGC 253	00 46.6	-25 24		02 31	01 03 03 31	60m	1 01W'						GAL			+2				
	NGC 1722 ~~5 Cet~~	04 52-1 ~~05 39.8~~	-66 58 ~~-01 57~~		05 15½	05 32½	17m	0 36E						P1			-1				
	NGC 1722	"	"		05 37	04 52 05 ~~08~~		0 0 0						~~Spiral~~	N.A	1S	-2				T12 H39 ~~T=5 H=47~~ T11 H39
~120	η Aql	19 51 3	01 02	14/15 NOV 80	00 47	01 01	4m 60 / fine	4 10W	2"	2.85	50μ/0.8	67/5.0S	B.mg 5.4	Cepheid	N.A	57S	8,9,10	II IIIaC	M-S	Gu	
	S Scu	0 14.4	-32 09	taken with filter	01 38	02 58	12m / blank dense sil	1 42W	1.5"				8.5	Mgiae			12			Gu	some cirrus
	V Car	08 28 18	-60 01		01 04	02 04	120m / weak	2 10E	2'	"	"	"	6.5	Ceph						Gu	
	T Cru	12 20 09	-62 10	N	07 30	08 30	60m / weak	4 50E	1'	"	"	"	7.5	'						Gu	Thin cirrus
2121	1982 UT	18 18.4	-24 44	15/16 NOV 80	00 29.5	00 42.6	13m / 20 weak	5 20W	1.5'	IT 333	50μ/.8	120/7	V ~4	N.V.A	Ne H	1S	+5	IIaD	M-S	Gu W I Z	T13 H45 1ST HALF MOON SOME CIRRUS
2122	S Scu	0 14.4	-32 09		01 58	02 23	25m / fine	2 10W	"	DIRECT 333	"	"	B 5.5	Mira	N.A	10S	7	IIaO	Mt 2 ~~M-S~~	Gu	30 min CLOUD
	R Hor	02 53.4	-49 54		03 24	04 54	90m / V. weak	2 00W	2"	"	100μ/.8	"	10.0	'			9			Gu	Cirrus Angle in Mira
	R Car	09 31.7	-62 42		06 00	07 30	90m / weak	2 00E	"	"	"	"	10.0	"			11			Gu	
	X Cen	11 48.2	-41 37		07 43	08 30	48m / fine	3 10E	"	"	"	"	9.2	"			12			Gu	
2123	HR 506	01 42.5	-53 45	17/18 Nov 80	01 36	01 46	10m / 5 steady	00 03W	2"	2.85	50μ/1.8	67/5.0S	6.3	sgG0	Ne H	40S	47	IIaO	M-S	Gu	15° 30 min T=1°C RH=51%
	~~HR 2107~~	~~05 59.0~~	~~-09 22~~																		
	HR 1016	03 21.4	-23 38		02 01	02 11	10m / fine	01 10E	"	"	"	"	6.4	G5 II			10	"	"	Gu	wind 15 mph
	HR 1336	04 14.5	-62 28		02 30	02 37	2m 13m / fine	01 30E	"	"	"	"	4.2	G0 II			11,12	"	"	Gu	SKY ~~CLEAR~~ SMOKY THIN BLUE HAZE

NUMBER	OBJECT	RA	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CAT# POS	EMUL	DEV	OBS	REMARKS
2123	HR 1746	05 19.2	+02 36	17/18 Nov 80	02 54	03 04	10m/week	02 10 E	2"	2.85	50µm/1.6	147/5.05	5.8	F5 II	NeH	460s	13	IIaO	M-S	Gu	
cont	HR 1722	05 33.6	-62 29		03 15	03 21	2m, 3m/fine	02 10 E	"	"	"	"	4.2	F8 Ia			14,15	"	"	Gu	
	HR 2107	05 59.0	-09 22		03 45	04 00	15m/fine/strong	02 00 E	"	"	"	"	6.7	F2 II			16	"	"	Gu	
	HR 2513	06 45.4	-52 12		04 58	05 20	22m/week	01 20 E	"	"	"	"	7.2	G0 Iab			17	"	"	Gu	
	HR 2693	07 04.3	-26 24		set tracks		15 tracks/week	01 35 E	"	"	"	"	2.5	F8 Ia			18,19	"	"	Gu	
	HR 3026	07 47.6	-15 57		05 42	06 15	33m/week	01 30 E	"	"	"	"	7.5	G8 Iab			20	"	"	Gu	
	HR 3045	07 49.3	-24 52		06 22	06 28	3m, 3m/fine	01 25 E	"	"	"	"	4.6	G3 Ib			21,22	"	"	Gu	
	HR 3102	07 56.8	-22 53		06 36	06 42	2m, 3m/fine	01 10 E	"	"	"	"	4.9	F8 II			23,24	"	"	Gu	
	HR 4441	11 31.7	-59 26		06 59	07 14	15m/fine/strong	01 10 E	"	"	"	"	6.2	sg G0			25	"	"	Gu	T: 7°C RH. 40%
	T Cru	12 30.1	-62 10		07 23	08 33	7m/fine/strong	01 50 E	"	"	"	"	7.6	cepk	Nb H	460s	26,27	"	"	Gu	cirrus is a bit of a problem
2134	HR 215	00 47 20	+24 16	18/19 Nov 80	01 27	01 45	18m/strong	00 07 W	2"	2.85	50µm/1.8	147/5.05	6.4	K1 II	NeH	335s	8	IIaO	M-S	Gu	1st hour very unstable T: 10°C RH: 54% wind 12mph
	HR 1933	05 33 37	-62 29		02 16	02 22	2m, 3m/fine	01 00 E	1.5"	"	"	"	4.2	F8 Ia			7,10,11	"	"	"	
	HR 2513	06 45 27	-52 12		02 46	03 38	52m/fine/strong	01 00 E	2"	"	"	"	7.5	G0 Iab			12	"	"	"	cirrus!
	AP Pup	07 51 1	-40 04		05 33 04 47	05 53	180m/week	00 37 E	3.5" 4 hours	"	"	"	8.1	cepk			13	"	"	"	wind 7 mph
2135	η Hya	19 51 25	+00 57	19/20 Nov 80	00 07	00 33	1m, 8m/fine	01 35 W	2-3"	2.85	50µm/1.8	147/5.05	4.15	cepk	NeH	35s	6,7	IIaO	M-S	Gu	T: 10°C RH: 54% wind 8 mph
	HR 8232	21 31 34	-65 35		00 37	00 45	12m, 3m/fine	03 10 W	"	"	"	"	3.73	G0 Ib			8,9,10	"	"	"	spot: 3 mm CCD
	HR 8714	22 05 47	-00 19		00 56	01 07	2m, 3m/fine	03 00 W	"	"	"	"	3.91	G2 Ib			13,13½,14	"	"	"	
	HR 3281	07 30 42	-30 58		02 37	03 17	10, 12, 14m/fine	04 00 E	"	"	"	"	5.56	G1 Ib			16,17,18	"	"	"	
	HR 2693	07 08 24	-26 24				30, 33, 36m/fine	03 15 E	"	"	"	"	2.52	F8 Ia			30,31	"	"	"	
	HR 3453	08 41 21	+32 11		04 21	05 41	80m/fine	01 00 E	"	"	"	"	7.64	G5 Ib			32	"	"	"	ST centered fast
	R Cru	12 22 35	-61 31	20/21 Nov 80	06 34	07 44	70m/strong	04 40 E	"	"	"	"	7.6	cepk	NeH	435s	35	"	"	"	
2126	RU Sgr	19 57 4	-41 54		01 17	02 40	83m/fine/strong	01 00 W	2"	3.33	100µm/1.6	120/7	9.1	MIRA	NeH	10s	7	IIaO	MMP 2	1m/CCD MIRA	T: 10°C wind H: 46% spot: 3 mm CCD cirrus in N, E pt
	S Car	10 09	-61 27		05 00	05 25	25m/week	05 25 E	3"	"	"	"	8.0	"			10	"	"	"	
2127	U Car	10 56.7	-59 37		06 09	07 24	15m/week	04 00 E	2-3-5"	2.85	50µm/1.8	147/5.05	7.3	cepk	NeH	20s	7	IIaO	M-S	Gu	cirrus!
	R Mus	12 40.7	-69 17		07 35	09 25	8m/fine	05 00 E	4.5"	"	"	"	6.9	cepk			9	"	"	"	
2128	W Sgr	18 03 41	-29 35	21/22 Nov 80	00 32.5	00 43.5	18m/fine	06 00 W	3"	2.85	50µm/1.8	147/5.05	5.74	cepk	NeH	20s	8	IIaO	M-S	Gu	T: 6°C H: 58% wind 8 mph
	η Hya	19 51 25	+00 57		00 50	00 58	8m/fine	04 30 W	"	"	"	"	5.0	cepk	spect. 3 mm CCD		4	"	"	"	
	ε Lyr	05 33 37	-62 29		01 22	01 36	14m/strong	04 30 E	"	"	"	"	4.2	F8 Ia			8,9	"	"	"	
	HR 210	00 45 12	-32 33		02 07	02 32	28m/week	00 50 W	2"	"	"	"	6.52	sg G0			10	"	"	"	interrupted exposure
	HR 255	00 53 18	-08 47		03 22	03 44	25m/week	02 20 W	"	"	"	"	7.09	sg G3			11	"	"	"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 301

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	~~CALIB~~ POS^N	EMUL	DEV	OBS	REMARKS
2128	HR 506	01 41 29	-53 45	21/22 Nov 80	03 56	04 11	13m/fine	01 50 W	2"	2.85	50µ/.8	67/5.05	6.41	sg Ge			12	IIaO	M-S	Ge	
cont	γ Gem	07 02.8	+20 36		04 27	04 31	4m/fine	03 10 E	"	"	"	"	4.3	ceph			13	"	"	"	
	HR 2473	06 42 56	+25 01		04 40	05 00	5m 6m 7m/3,4,5 ok	02 30 E	"	"	"	"	4.5	G8 IIb			14,15,16	"	"	"	
	S Mus	12 11 36	-70 02		06 13	07 13	60m/fine	05 30 E	"	"	"	"	7.16	ceph			17	"	"	"	
	ĥ Mus	12 40 43	-69 17		07 25	07 58	38m/steady	05 20 E	"	"	"	"	6.7	ceph			18				
2129	1982 UT	18 18.4	-24 44	22/23 Nov 80	00 30	00 45	15m/fine	05 50 W	1".2"	3.33	100µ/.6	120/2.0	~9	NOVA	NeA	~1^s	+5	IIaD	M-S	Ge	image tube
2130	S Psc A	22 03	-28 09		01 48.5	02 18	30m/steady	03 45 W	"	"	100µ/.8	"	10.2	MIRA			+5	IIaD	M-S	Ge	Cu-Hgm. T=13°C (H 40%). wind ~10 mph
	R Phe	23 55	-50 54		03 17	03 42	25m/steady	03 15 W	"	"	"	"	10 1	"			+4	"	"	"	
	R Hor	02 53	-49 58		04 07	04 42	35m/weak	01 10 W	"	"	"	"	10 5	"			+3				
	W Pup	07 45	-42 09		05 07	05 40	33m/fine	02 35 E	"	"	"	"	10.3	"	NeA	~1^s	+2	"	"	"	
2131	ζ Cen	09 45	-62 25		07 16.5	07 32	6m 8m/fine	02 45 E	2"	2.85	50µ/.8	67/5.05	5.3	cepk	NeA	20^s	7,9	IIaO	M-S	Ge	
	U Cen	10 57	-59 37		07 46	08 34	48m/weak	03 00 E	"	"	"	"	7.4	"	spect. 3c min @ 16V		11	"	"	"	
2132	πUrs	19 51	+00 57	23/24 Nov 80	00 38	00 58	4m 6m 8m/fine	04 35 W	"	2.85	50µ/.8	67/5.05	4.5	cepk	NeA	20^s	7,8,9	IIaO	M-S	Ge	T=13 H 37%
	HR 215	00 47	+24 16		01 14	01 28	14m/fine	00 10 W	"	"	"	"	6.2	K1 II			10	"	"	"	wind ~10 mph
	G Dor	05 33	-62 27		02 47	02 50	3m/fine	03 10 E	"	"	"	"	4.2	cepk			11	"	"	"	spot 3c in C16V
	÷R 2643	07 08	-26 24		guide trail		a bit weak	03 40 E	"	"	"	"	2.5	F5 Ia			12				
	HR 3291	08 23	-26 21		04 11	04 26	15m/fine	04 30 E	"	"	"	"	6.3	F2 Ib			13	"	"	"	
	HR 3445	08 40	-46 37		04 34	04 43	3m 4m/fine	04 30 E	"	"	"	"	4.6	F2 Ia			14,15				
	HR 3496	08 47	-46 09		04 53	05 06	13m/fine	04 00 E	"	"	"	"	6.3	F2 Iab			16?	"	"	"	
	HR 334	09 08	-43 26		05 18	05 21	3m/fine	04 15 E	"	"	"	"	4.0	K5 Ib			18	"			
2133	RU Sgr	19 57	-41 54	24/25 Nov 80	00 26	00 36	10m/fine	04 15 W	2"	DIRECT 3.33	100µ/.8	120/1.	9.2	M1AA	NeA	10^s	7	IIaO	MuP2	Ge	T=13° H 35%
	S Ind	20 55	-54 24		01 47	03 17	10m/fine	06 00 W	"	"	"	"	9.4	"			7	"	"	"	wind ~20 mph
2134a	λ Cen	09 44	-62 25		04 51	05 05	14m/fine	05 00 E	~4"	2.85	50µ/.8	67/5.05	5.9	cepk	NeA	20^s	7	IIaO	M-S	Ge	wind ~30 mph to 35 mph T=13°C
2134b	U Cen	10 57	-59 37		06 16	07 46	90m/fine	03 30 E	2"	"	"	"	~8								
	S Cru	12 53	-58 17		07 57	08 35	38m/fine	04 40 E	"	"	"	"	~7.2				7				
2135	RT Sgr	20 16	-39 10	25/26 Nov 80	00 39	01 31	60m/fine	04 00 W	~1"	3.33	100µ/.8	120/7	9.0	M1RH	NeH	10^s	6	IIaO	MuP2	Ge	T 14 H 35% wind ~10 mph
2136	ER Cen	11 09	-58 43		06 22	07 17	55m/fine	04 00 E	"	2.85	50µ/.8	67/5.05	7.6	cepk	NeA	20^s	7	IIaO	M-S	Ge	spot 3c in C16V
	HR 4511	11 43	-62 29		07 22	07 32	10m/fine	04 30 E	"	"	"	"	5.81	G0 Ia			9	"	"	"	
	R Cru	12 22	-61 31		07 37	08 12	35m/fine	04 30 E	"	"	"	"	7.2	cepk			10				
	S Mus	12 11	-70 02		08 17	08 40	23m/fine	03 50 E	"	"	"	"	6.9	cepk	NeH	20^s	12	"	"	"	

NUMBER	OBJECT	R A	DEC.	DATE U.T	U.T EXP. BEGIN	U.T EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	~~CALIB~~ FCSN	EMUL	DEV	OBS	REMARKS
2137	~~S~~ PIS AUS	22 02.6	-28 09	26/27 Nov/58	01 03½	01 30	26½m fine	03 15W	2"/Clr	IT 3.33	100µ/0.8	120/7.0	B 10.2	M4e	NeA	~15	+5	II aP	M-S	Gu	TIS H=30 c.m.l. C sepk spot: 3cm @ 16 V
2138	B Eri	05 33	-62 29		04 33	04 41	3m 49s fine	01 08E	"	2.85	50µ/.8	67/5.05	4.2	sepk	NeA	20s	7,8	IIaO	M-S	Gu "	
	HR 2107	05 59	-09 22		04 56	05 04	8m/week	01 10E	"	"	"	"	6.6	F2 II			9	"	"	"	
	NR 1746	05 19	+02 36		05 14	05 19	5m/week	00 15E	"	"	"	"	5.8	F5 II			10	"	"	"	
	T Mon	06 25	+07 05		05 27	05 56	11m 13m 5 weeks	00 50E	"	"	"		6.6	sepk			11,12	"	"	"	
	{Gem	07 04	+20 34		06 01	06 05	3½m/fine	01 15E	"	"	"	"	~4.0	sepk			13	"	"	"	
	{Cnc	9 44	-02 25		06 ~~54~~	06 31	7m/fine	03 30E	"	"	"	"	5.1	"			14	"	"	"	
	11 Cnc	10 56	-59 37		06 36	07 21	45m/fine	03 50E	"	"	"	"	7.6	"			16	"	"	"	
	S Mus	12 11	-70 02		07 30	07 48	18m/fine	04 35E	"	"	"	"	6.6	"			17	"	"	"	
	TCru	12 20	-62 09		07 54	08 34	40m/week	04 00E	"	"	"	"	7.7	"	NeA	20s	16	"	"	"	
2139	1952 UT	18 18	-24 44	27/28 Nov 58	00 33	00 53	40m/week	01 20W	2"	IT 3.33	100µ/1.6	120/7.0	9th-11th	NOVA	NeH	~15	+5	IIaD	M-S	Gu/Quartz	T=12" H=35 c.m.l.=C sepk Hot channel by dome heat at exposure
2140	HR 8321	21 46	+22 57	28/29 Nov 58	00 44	01 31	47m/fine	03 45W	1"-2"	2.85	50µ/.8	67/5.05	6.7	K0 Ib	NeA	20s	9	IIaC	M-S	Gu	
	HR 1746	05 19	+02 36		02 03	02 14	11m/fine	03 19E	1"	"	"	"	5.7	F5 II			8				TIS H=30 c.m.l.=C sepk spot: 30 min @ 16V
	~~HR 1767~~	~~05 59~~	~~-02 22~~										~~6.7~~	~~F5 II~~			~~E~~				
	B Cnc	08 33	-62 29		02 35	02 38	3m/fine	03 00E	"	"	"	"	4.2	sepk			7	"	"	"	
	~~{Gem~~	~~07 04~~	~~+20 34~~																		

✓ GOOD
✓✓ EXCELLENT

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC. 1980	DATE U.T. 1980	U.T. EXP/ST BEGIN	U.T. EXP/ST END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG V	SP.	COMP KIND	COMP EXP	CALIB POS'N	EMUL	DEV	OBS	REMARKS
2141	S SCL	$0^h14.^m4$	$-32°09'$	DEC 30	1:48	2:24	83m/36m	WRONG STAR!	1"/CLEAR	3.33	100/0.8	120/7.0	8.0	M3e-M8e			7	IIa-O	MWP-2	CRW	H=60%, T=12°C WIND=10
	✓ "	"	"		3:40	4:16															
					2:27	3:59	132m/90m	5h 30m W	"	"	"	"	<8.5	"			8	"	"	"	
					4:21	5:51															
SL STRONG	✓ R CAE	$4^h39.^m8$	$-38°16'$		4:14	5:45	91m/91m	2^h57^m W					✓8.0	M6e			10				H=47%
					6:06	7:37															
	✓ S PIC	$5^h10.^m5$	$-48°32'$		6:00	6:32	30m/32m	3^h14^m W					✓7.0?	M7e-M8e			12				
					7:53	8:27															
	✓✓ W PUP	$7^h45.^m3$	$-42°09'$		6:45	7:58	78m/78m	2^h06^m W					✓8.4	M3e	NeA	10^5	14				H=56%, T=12°C SPOT CALIBRATION
					8:37	9:51															
2142	R PHE	$23^h55.^m5$	$-49°54'$	DEC 31	1:54	3:30	115m/96m	QUALITY sl wk	2"/CLEAR	3.33	100/0.8	120/7.0	✓8.4	M3e	NeA	10^5	9	IIa-O	MWP-2	CRW	H=60%, T=13°C
					3:49	5:25															
	S CAR	$10^h08.^m7$	$-61°27'$		3:50	5:28	129m/98m	sl wk					✓8.5	K7e-M4e	NeA	10^5	11			CASSEGRAIN TEL	H=48%, T=13°C
					5:45	7:23															
2143	O CET	$2^h18.^m3$	$-3°04'$	JAN 1/81	1:24	1:54	27m/30m	sl STRONG	1½"/CLEAR	3.33	100/0.8	120/7.0	<7.0	M5e-M8e	NeA	10^5	9	IIa-O	MWP-2	CRW	H=54%, T=13°C
					3:22	3:52															
	V HOR	$3^h03.^m0$	$-59°00'$		2:06	2:42	33m/36m	WEAK					>7.2	M5III			11				
					4:03	4:40															
	119 TAU	$5^h31.^m1$	$+18°35'$		2:56	3:11	4m8/5m9	WEAK IN BLUE, TOO STRONG AT 4100					✓4.7	M2Iab-IIab			13,14				
					4:55	5:10															
	δ LEP	$6^h04.^m4$	$-24°11'$		3:19	3:51	29m/32m	VERY GOOD					✓7.2	M6III			16				
					5:18	5:50															
	W VEL	$10^h14.^m5$	$-54°23'$		4:05	5:57	144m/112m	EXCELLENT					<8.9?	M8III	NeA	10^5	20				
					6:04	7:56															
	RS CEN	$11^h19.^m6$	$-61°46'$		6:07	7:42	147m/95m	TOO WEAK, ESPECIALLY IN BLUE					>8.8?	M4Ibe-M4e			22				
					8:06	9:44															
	W CEN	$11^h54.^m1$	$-59°09'$		7:46	8:49	127m/63m	TOO WEAK					✓8.6	M3e-M8IIIe			24				H=58%, T=12°C WIND=6-15
					9:46	10:49															
2144	O CET	$2^h18.^m3$	$-3°04'$	JAN 2/81	1:04	1:29	26m/25m	VERY GOOD	1"/CLEAR	3.33	100/0.8	120/7.0	✓6.5?	M5e-M7e	NeA	10^5	9	IIa-O	MWP-2	CRW	H=48%, T=14°C WIND=4 mph
					3:06	3:31															
	V HOR	$3^h03.^m0$	$-59°00'$		2:06	3:10	60m/64m	WEAK (SPECTRUM MOVED)					>7.8	M5III			11				
					4:09	5:13															
	DG ERI	$4^h19.^m8$	$-16°52'$		3:33	4:10	23m/27m(?)	GOOD WK IN H+K					✓7.0	M4III			13				10-min break due to stomach attack
					5:36	6:13															
	X CEN	$11^h48.^m2$	$-41°39'$		4:21	6:02	134m/101m	VERY GOOD			100/0.6	120/7.0	✓8.8	M5e-M6e	NeA	10^5	17				
					6:24	8:05															
	R HYA	$13^h28.^m6$	$-23°11'$		6:24	7:54	126m/90m	VERY GOOD					✓8.6	M6e-M8e(S)			19				
					8:27	9:57															
	R NOR	$15^h34.^m6$	$-49°27'$		8:01	8:59	108m/58m	SL WEAK					✓8.3?	M3e-M6III	NeA	10^5	21				H=50%, T=12°C
					10:04	11:02															
2145	30 PSC	$0^h00.^m9$	$-6°07'$	JAN 3/81	1:10	1:23	3m/2m3/6m	3 W 6 ✓ for H+K	1"/CLEAR	3.33	100/0.8	120/7.0	✓4.4	M3III	NeA	10^5	9-11	IIa-O	MWP-2	CRW	H=50%, T=14°C
					3:16	3:29															
	BS 46	$0^h13.^m4$	$-7°53'$		1:30	~~1:36~~ 1:40	8m/10½m	SL STRONG GOOD for H+K					✓5.4	M3III			13				
					3:36	3:46															
	O CET	$2^h18.^m3$	$-3°04'$		1:45	2:01	15m/16m	EXCELLENT					✓6.2*?	M5e-M7e			15				* BETWEEN 6.2 + 6.5
					3:52	4:09															
	57 PSC	$0^h45.^m5$	$+15°22'$		2:07	2:18	12m/11m	GOOD					✓5.4	M4III			17				
					4:13	4:24															
	45 RZ ARI	$2^h54.^m7$	$+18°16$		2:23	2:40	16m/17m	EXCELLENT					✓5.9	M6III			19				
					4:29	4:46															
	Z PUP	$7^h31.^m6$	$-20°37'$		2:56	4:27	143m/91m	TOO WEAK			100/0.6	120/7.0	>9.0?	M4e-M4e			21				
					5:03	6:34															
	RS CEN	$11^h19.^m6$	$-61°46'$		4:44	6:14	150m/90m	SL WEAK					✓8.7?	M1be-M4e			23				
					6:51	8:21															
	W CEN	$11^h54.^m1$	$-59°09'$		6:22	7:49	86m/87m	GOOD					✓8.4	M3e-M8IIIe			24				
					8:30	9:57															
	T NOR	$15^h42.^m6$	$-54°56'$		7:58	8:58	132m/60m	TOO WEAK					✓8.5?	M2e-M6	NeA	10^5	26				H=45%, T=13°C WIND=1-10
					10:05	11:05															

UNIVERSITY OF TORONTO

✓ GOOD ✓✓ EXCELLENT

LAS CAMPANAS OBSERVATORY (24-INCH) ✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC 1980	DATE U.T.	U.T. EXP./ST BEGIN	U.T. EXP./ST END	TOTAL / CORR.	~~H-A END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG V	SP	COMP KIND	COMP EXP	~~CALIB~~ Pos'N	EMUL	DEV	OBS	REMARKS
2146	45 RZ ARI	$2^h54.^m7$	$+18°16'$	JAN 4	1:40	1 47	$73^s/60^s,75^s,90^s$ 75^s ✓		1"/CLEAR	3-33	100/0.8	120/7.0	✓5.9	M6 III			-5	IIa-D	M-5	CRW	T=14° H=50% / in precise focus?
	O CET	$2^h18.^m3$	$-3°04'$		1:55	2:00	$87^s/60^s,90^s$ ✓✓						✓6.2	M5e-M9e			-2	(SPOT CALIBRATED)			10^m SPOT CALIBRATION
	V HOR	$3^h03.^m0$	$-59°00'$		2:07	2:18	$10^m/11^m$	VERY GOOD					✓8.3	M5 III	NeA	1^s	+1				
	DG ERI	$4^h19.^m8$	$-16°52'$		2:25	2:32		✓ SL WEAK (H+K)					✓7.0	M4 III			+2				
	δ LEP	$6^h04.^m4$	$-24°11'$		2:40	2:48		✓					✓7.2?	M6 III	NeA	1^s	+4				in precise focus?
2147	T ERI	$3^h54.^m4$	$-24°05'$		3:15	4:08	$4^m/2^m,4^m$ 2^m ✓	GOOD					✓10.0	M3e-M5e			-5				
	T COL	$5^h18.^m6$	$-33°44'$		4:13	4:47	$50^m/53^m$	SL STRONG					✓9.7	M4e-M6			-3				
	RV PUP	$6^h41.^m9$	$-42°21'$		6:23	6:58	$34^m/34^m$	VERY GOOD					✓8.5?	M1e			-1				
	AS PUP	$8^h09.^m0$	$-38°07'$		4:55	5:06	$11^m/11^m$	GOOD wk H+K					✓8.5?	M7e	NeA	1^s	+1				
	Z PUP	$7^h31.^m6$	$-20°37'$		5:19	5:34	$15^m/15^m$	✓✓ EXCELLENT					✓9.2	M4e-M9e			+3				
	S PYX	$9^h04.^m2$	$-25°01'$		5:44	6:05	$24^m/24^m$	VERY GOOD wk H+K					✓10.0	M3e	NeA	1^s	+5				
2148	R CAR	$9^h31.^m7$	$-62°42'$		6:11	6:55	$45^m/44^m$	✓✓ EXCELLENT					✓9.5	M4e-M8e			-5				in precise focus?
	S CAR	$10^h08.^m7$	$-61°27'$		7:22	7:54	$32^m/32^m$	GOOD					✓8.5	K7e-M4e			-3				
	RS CEN	$11^h19.^m6$	$-61°46'$		7:58	8:10	$12^m/12^m$	GOOD wk H+K					✓8.7	M4e-M7e			-1				
	R NOR	$15^h34.^m6$	$-49°27'$		8:13	8:29	$16^m/16^m$	SL WEAK at H+K					✓8.25	M3e-M6 III	NeA	1^s	+1				
	RX BOO	$14^h23.^m3$	$+25°47'$	JAN 5	8:33	8:49	$15^m/16^m$	✓✓ EXCELLENT					>7.2?	M7.5-8	NeA	1^s	+3				T=13°C. H=44%
2149	45 RZ ARI	$2^h54.^m7$	$+18°16'$		1:12	1:14															
	O CET	$2^h18.^m3$	$-3°04'$		3:26	3:28	$73^s/75^s$	✓✓	1"/CLEAR	3-42	100/0.8	120/7.0	✓5.9	M6 III			-5	IIa-D	M-5	CRW	T=14° H=53% / in precise focus?
	57 PSC	$0^h45.^m5$	$+15°22'$		1:19	1:21															
	DG ERI	$4^h19.^m8$	$-16°52'$		3:33	3:35	$87^s/85^s$	✓✓					✓6.2	M5e-M9e			-4	(SPOT CALIBRATED)			3m 2m 1m / SPOT CALIBRATION
	δ LEP	$6^h04.^m4$	$-24°11'$		1:29	1:30															
	T SCL	$0^h28.^m3$	$-38°01'$		3:42	3:44	$50^s/55^s$	GOOD wk in H+K					✓5.4	M4 III			-3				
	RS PHE	$1^h13.^m6$	$-56°50'$		1:36	1:40															
	R CAR	$9^h31.^m7$	$-62°42'$		2:50	3:54	$3^m/225^s$	GOOD wk in H+K					✓7.0	M4 III			-2				
	V ANT	$10^h20.^m3$	$-34°42'$		1:48	1:51															
	U OCT	$13^h22.^m0$	$-84°07'$		4:02	4:05	$125^s/165^s$	✓✓					✓6.6	M6 III			-1				
	T SCL	$0^h28.^m3$	$-38°01'$		2:02	3:02															
	RS PHE	$1^h13.^m6$	$-56°50'$		4:16	5:17	$55^m/60^m$	✓✓					✓10.1	M3	NeA	1^s	+1				
	R CAR	$9^h31.^m7$	$-62°42'$		3:18	5:04															
	V ANT	$10^h20.^m3$	$-34°42'$		5:32	7:19	$85^m/106^m$	GOOD DRIFT STAR	?✓ NOTE: M2!				✓10.6?	M2e			+2				
	U OCT	$13^h22.^m0$	$-84°07'$		5:11	5:49															
2150	R CEN	$14^h15.^m2$	$-59°49'$		7:26	7:59	$32^m/33^m$	GOOD					✓9.5	M4e-M8e			+3				
	T NOR	$15^h42.^m6$	$-54°56'$		5:50	6 04															
					8:05	8:19	$13^m/14^m$	✓✓					✓8.5	M7 IIIe			+4				
					6:35	6:59															
					8:50	9:14	$22^m/24^m$	✓✓					✓9.2	M4e-M6e	NeA	1^s	+5				
					7:37	8:33															
					9:52	10:49	$55^m/56^m$	VERY GOOD					>10.0	M4e-M7Ie			-5				in precise focus?
					8:37	9:00															T=12°C H=69%
					10:52	11:16	$22^m/23^m$	✓✓					✓9.0	M3e-M6	NeA	1^s	-3				

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH) ✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC. 1980	DATE U.T. 1981	U.T. EXP / ST BEGIN	U.T. EXP / ST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	~~CALIB.~~ POS'N	EMUL.	DEV.	OBS.	REMARKS
2151	R PsA	$22^h16^m.9$	$-29°42'$	JAN 6	1:06	1:38	$26^m/32^m$	O.K. STRONG	1"/CLEAR	3.37	100/0.8	120/0.0	✓9.0	M4III-M5III	■		-5	IIa-D	M-5	CRW	T=13°C H=51% / 1m SPOT CALIBRATION
	R IND	$22^h34^m.7$	$-67°24'$		3:24	3:56															
					1:45	2:37	$45^m/52^m$	✓ wk in HAK					✓9.5	M2e-M4IIIe			-4	(SPOT CALIBRATED)			
	45 RZ ARI	$2^h54^m.7$	$+18°16'$		4:03	4:55															
					3:02	3:04	$80^s/85^s$	✓					✓5.9	M6-III			-3				USING CHART FOR EXPOSURE TIMES
					5:20	5:22															
	O CET	$2^h18^m.3$	$-3°04'$		3:09	3:11	$96^s/100^s$	✓✓					✓6.2	M5e-M7e			-2				
					5:27	5:29															
	δ LEP	$6^h04^m.4$	$-24°11'$		2:46	3:20	$125^s/185^s$	✓					✓6.6	M6III			-1				
					5:35	5:39															
	R HOR	$2^h53^m.2$	$-49°58'$		3:33	4:28	$40^m/55^m$	VERY GOOD SL STRONG					<9.5?	M5-M7e III-III	NeA	1s	+1				
					5:52	6:47															
	R CAE	$4^h39^m.8$	$-38°16'$		4:35	4:50	$15^m/15^m$	✓✓					✓8.3	M6e			+2				
					6:53	7:08															
	S PIC	$5^h10^m.5$	$-48°32'$		5:00	5:17	$4½^m/5^m,10^m$	✓5m HAK ✓10m					>7.0?	M7e-M8III-II			+3				USING COMPUTER PROGRAM (REVISED) FOR EXPOSURE TIMES
					7:19	7:36															
	W PUP	$7^h45^m.3$	$-42°09'$		5:26	5:41	$15^m/15^m$	SL STRONG ✓					✓8.4	M3e	NeA	1s	+5				
					7:45	8:00															
2152	W VEL	$10^h14^m.5$	$-54°23'$		6:10	6:40	$29^m/30^m$	✓HAK SL STRONG					✓8.9	M8IIIe			-5				
					8:29	8:59															
	X CEN	$11^h48^m.2$	$-41°39'$		6:45	7:07	$20^m/22^m$	✓✓					✓8.8	M5e-M6e			-3				
					9:04	9:26															
	W CEN	$11^h54^m.1$	$-59°09'$		7:12	7:26	$14^m/14^m$	✓ SL wk HAK					>8.4	M3e-M8IIIe	NeA	1s	-1				
					9:31	9:45															
	R HYA	$13^h28^m.6$	$-23°11'$		7:31	7:45	$12^m/14^m$	✓✓ SL STRONG					✓8.0	M6e-M8e(5)			+1				
					9:50	10:04															
	RT CEN	$13^h46^m.9$	$-36°46'$		7:51	8:57	$69^m/66^m$	✓✓					✓10.1	M6IIIe	NeA	1s	+3				T=13°C H=51%
					10:10	11:16															
2153	T CRU	$22^h24^m.4$	$-37°41'$	JAN 7	1:18	2:43	$87^m/85^m$	TOO WEAK	1"/CLEAR	3.37	100/0.8	120/0.0	>10.6?	M4Ioe-M7IIIe			-5	IIa-D	M-5	CRW	T=16°C H=56% / SOME CLOUD!
					3:40	5:05															
	S SCL	$0^h14^m.4$	$-32°09'$		2:52	3:13	$18^m/21^m$	✓ SL wk HAK					✓8.5	M3e-M8e			-4	(SPOT CALIBRATED)			1m / 30s (2) SPOT CALIBRATION
					5:14	5:35															
	45 RZ ARI	$2^h54^m.7$	$+18°16'$		3:24	3:26	$96^s/110^s$	✓					✓5.9	M6III			-3				
					5:46	5:48															
	O CET	$2^h18^m.3$	$-3°04'$		3:31	3:33	$120^s/140^s$	✓✓					✓6.2	M5e-M7e			-2				
					5:53	5:55															
	δ LEP	$6^h04^m.4$	$-24°11'$		3:39	3:42	$150^s/185^s$	✓					✓6.6	M6III			-1				
					6:01	6:04															
	V HOR	$3^h03^m.0$	$-59°00'$		3:52	4:08	$13^m/16^m$	✓ SL strong					✓8.3	M5III	NeA	1s	+1				
					6:14	6:30															
	S CAR	$10^h08^m.7$	$-61°27'$		4:55	5:15	$19^m/20^m$	✓ wk HAK					✓8.5	K7e-M4e			+2				Searching for GROUP OF STARS
					7:18	7:38															
	56 VV LEO	$10^h55^m.0$	$+6°17'$		5:34	5:36	$100^s/120^s$	VERY GOOD					✓6.0	M5.5III			+3				
					7:56	7:58															
	BK VIR	$12^h29^m.3$	$+4°31'$		5:47	6:05	$18^m/18^m$	VERY GOOD					✓8.5	MTIII			+5				FIRST ATTEMPT ABORTED
					8:08	8:28															
2154	XZ CEN	$12^h23^m.2$	$-35°31'$	9:00	6:37	7:59	$87^m/82^m$	wk >M5!					>10.5?	M5*			-5				*definitely later
					10:22																
	SW VIR	$13^h13^m.0$	$-2°43'$		8:04	8:14	$8^m/10½^m$	VERY GOOD					✓7.5?	MTIII			-3				
					10:27	10:37															
	EV VIR	$14^h12^m.0$	$-13°46'$		8:18	8:23	$5^m/5½^m$	SL wk					7.2 (why we did?)	M4-4.5III-III			-1				
					10:41	10:46															
	RX BOO	$14^h23^m.3$	$+25°47'$		8:27	8:42	$15^m/14½^m$	wk					>8.0?	M2.5-8	NeA	1s	+1				
					10:50	11:05															
	RR SCO	$16^h55^m.4$	$-30°33'$		8:46	9:01	$14½^m/15^m$	VERY GOOD SL strong at 4300					✓8.0?	MGIII-III-M8IIIe	NeA	1s	+3				T=14°C H=52%
					11:09	11:24															

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH) ✓ CORRECT

PAGE 306

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC. 1980	DATE U.T. 1981	ST/UT EXP BEGIN	ST/UT EXP END	TOTAL / CORR.	H.A. END QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB. P.S.'N	EMUL.	DEV.	OBS.	REMARKS
2155	U TUC	$0^h56.^m6$	$-75°06'$	JAN 8	3:22	3:38	40m/16m	ADJUSTED DUE TO PILOT ✓	1"/CLEAR	3.33	100/0.8	120/7.0	≤9.5?	M3e-M5e			-5	IIa-D	M-S	Crw	T=15°C H=61% | running water
	R PHE	$23^h55.^m5$	$-49°54'$		3:44	4:03	16m/19m	wk H+K					✓8.7?	M3e			-4	(SPOT CALIBRATED)			285 56 (SPOT CALIBRATION
	R PsA	$22^h16.^m9$	$-29°42'$		4:22	4:32	37m/10m	ADJUSTED DUE TO VFO FAILURE	TOO WEAK				9.0?	M4e-M5IIIe			-3				Stupid due to VFO FAILURE
	S SCL	$0^h14.^m4$	$-32°09'$		1:55	2:05															
					4:58	5:24	18m/26m	✓✓					✓8.5	M3e-M8e			-2				1/2h LOST DUE TO VFO
	R HOR	$2^h53.^m2$	$-49°58'$		2:31	2:57															
					5:29	6:07	35m/38m	✓✓ SL. STRING					✓9.2	M5-M7II-IIIe			-1				
	45 RZ ARI	$2^h54.^m7$	$+18°16'$		3:02	3:40															
					(3:56)	6:26							✓5.9	M6III	NeA	1s	+1				CLOUD!
					6:22	3:59	100s/150s	✓													
	O CET	$2^h18.^m3$	$-3°04'$		6:33	6:37	110s/210s	✓✓					✓6.2	M5e-M9e			+2				CLOUD LEW IN W
					4:06	4:10															
	δ LEP	$6^h04.^m4$	$-24°11'$		6:43	6:46	160s/210s	✓	2"/CLEAR				✓6.6	M6III			+3				SEEING ~2"
					4:17	4:20															
	DG ERI	$4^h19.^m8$	$-16°52'$		6:55	7:01	4m/6½m	✓ wk H+K					✓7.0	M4III			+4				
					4:28	4:34															
	π LEO	$9^h59.^m1$	$+8°08'$		7:12	7:13	26s/50s	✓ wk H+K					✓7.7	M2IIIab	NeA	1s	+5				3 GUIDE TRAILS
					4:45	4:46															
2156	RV PUP	$6^h41.^m9$	$-42°21'$		7:35	7:52	15m/17½m	✓✓ wk H+K					✓8.5	M1e			-5				
					5:08	5:25			DIFFICULT TO GET H+K!												
	W PUP	$7^h45.^m3$	$-42°09'$		7:58	8:16	16m/18½m	✓✓ wk H+K					✓8.6?	M3e			-4				BLOD!
					5:31	5:49															
	Z PUP	$7^h31.^m6$	$-20°37'$		8:23	8:59	38m/35m	✓✓ sl wk H+K					✓9.5	M4e-M9e			-3				
					5:56	6:32															
	W VEL	$10^h14.^m5$	$-54°23'$		9:04	9:29	26m/25m	✓✓					✓9.0	M8IIIe			-2				
					6:36	7:01															
	RS CEN	$11^h19.^m6$	$-61°46'$		9:34	10:01	23m/27m	✓ wk in H+K	SAME HERE!				✓8.7	M11e-M4e			-1				
					7:06	7:33															
	W CEN	$11^h54.^m1$	$-59°08'$		10:05	10:25	16m/20m	✓✓					✓8.5	M3e-M5IIIe	NeA	1s	+1				
					7:38	7:58															
	↑ VIR	$12^h52.^m4$	$-9°26'$		10:38	10:59	28s/34s	✓ wk H+K	MISTAKE!		100/1.2		4.8e	M3III			+2				2 GUIDE TRAILS
					8:11	8:32															
	RX BOO	$14^h23.^m3$	$+25°47'$		10:46	11:11	24m/24m	✓✓			100/0.8		✓8.5?	M7-5-8			+3				
					8:19	8:45															
	T NOR	$15^h42.^m6$	$-54°56'$		11:16	11:40	19m/24m	✓ in H+K	STRONG OTHERWISE		100/0.8		✓8.7	M3e-M6e	NeA	1s	+4				T=12°C | H=73%
					8:48	9:12															
2157	45 RZ ARI	$2^h54.^m7$	$+18°16'$	JAN 9	3:38	3:50	12m/12½m	✓✓	1"/CLEAR	3.33	100/0.8	120/7.0	5.9	M6III	NeA	10s	P.S.9	IIa-O	M-F-2	Crw	T=13°C | H=35%
					1:07	1:19															
	O CET	$2^h18.^m3$	$-3°04'$		3:54	4:09	15m/15½m	✓✓					✓6.2	M5e-M9e			11	(SPOT CALIBRATED)			NOTE: IN SENSITOMETER 5S EXTRA WITH RG #15!
					1:24	1:39															
	57 PSC	$0^h45.^m5$	$+15°22'$		4:17	4:17	STOPPED 9m/11m (CLOUD 5m)	✓✓	EVENING FELL OUT!				✓5.4	M4IIIe			13,814				RESTARTED AT 1:58 FINISHED AT 2:09
					1:47	STOPPED															
	30 PSC	$0^h00.^m9$	$-6°07'$		4:45	4:57	4m/4½m	✓ wk H+K	DARK SLIDE FELL OUT				✓4.4	M3III			17				RESTARTED AT 2:17 FINISHED AT 2:21
					2:15	STOPPED															
	χ ERI	$3^h57.^m1$	$-13°34'$		4:58	5:00	42s/50s	✓ VERY COLD					✓3.2	M1.5III			19				
					2:27	2:29															
	RV PUP	$6^h41.^m9$	$-42°21'$		5:06	6:42	94m/95m	WEAK					>8.5?	M1e			21				
					2:36	4:11															
	AB PUP	$8^h09.^m0$	$-38°07'$		6:47	8:27	94m/100m	✓✓					8.1?	M7e	NeA	10s	23	IIa-D SPOT CALIBRATION	2m 3m 5m (2)	@ 10 VOLTS.	
					4:16	5:56															
2158	V ANT	$10^h20.^m3$	$-34°42'$		2:54	10:29	100/90m	✓✓					✓8.0?	M7IIIe	NeA	10s	8				
					6:23	7:53															
	56 VY LEO	$10^h55.^m0$	$+6°17'$		10:34	10:47	10½m/13m	✓✓	2"/CLEAR				✓6.0	M5.5III			12				
					8:02	8:15															
	SW VIR	$13^h13.^m0$	$-2°43$		10:58	11:40	51m/50m	✓✓					✓7.5	M7III	NeA	10s	14				CLOUDS AT DAWN! T=12°C | H=55%
					8:18	9:08															

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	✓=OK TOTAL/CORR 0=OVER U=UNDER	H.A. END	SEE./TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB POS	EMUL	DEV	OBS	REMARKS
2159	NGC 1647 #28	04h 44m 8	+19° 01'	14 JAN/81	02 21½	02:36½	15m / ✓	00:42 W	1"-2"	3.33	100/0.8	120/7.0	9 8	-			-5	IIaD	M-S	CRd + PB	T=14, H=60 W=0.
	~~LS 647~~ ~~656~~	07 38 2	-33° 26'	"	03 03	05:48	165m / ✓	01:00 W	"	"	"	"	12 6	OB			-3				
	LS 787	07 47 1	-30° 23'	"	06.02	07:47	105m / ✓	2:52 W	"	"	"	"	12·1	OB⁻			-1				
	LS 783	07 51	-28° 19'	"	07.52	07:54¾	2m45s / ✓	03.00 W		"	"	"	8 1	OB			+1				~~NEGS~~
2160	NGC 1647 #30	04h 44m 6	+19° 01'	15/1/81	01·01	01:22.	21m / ✓	0:28 E	~2"	3·33	100/0 8	120/7.0	10 3	-			-5	IIaD	M-S	CRd + PB	T=13, H=628, W=0.
	LS 682	07h 41.0	-34° 44.7	"	0155	02:42.	46½m / 0	02.04E	"	3 33	100/0 8	120/7.0	11.2	OB			-3	IIaD	M-S	CR + PB	
	LS 690	7h 40m 5	-34° 39'	"	2:49	03:49	60m / 0	0.52E	"	"	"	"	11 5	OB+			-1	"	"	"	
	LS 903	7 58 4	-28°35'	"	3·57	7 57	4h / ✓	2·45W	"	"	"	"	13 0	OB			+1	"	"	"	Bright ½ moon
	LS 736	7h44.4m	-30° 40'	"	8 02	8.09	7m / ✓	3·19W	"	333	"	"	9.1	OB			+3	"	"	"	no moon
	LS 784	7h 47.1	-30°05'	"	8:13	8:19	6m / ✓	3:27W	"	3.33	"	"	8 9	OB			+5	"	"	"	"
2161	LS 648	7h 38.4	-33 39	16 JAN 1981	2 10	9:58.	168m / ✓	0 19W	2"-3"	3·33	100/0 8	120/7.0	12 6	OB			-5	IIaD	M-S	CRd + PB.	17-60% T-12°C ERRATIC SEEING
	LS 656	7h 39m.8	-33 28	"	5 04½	5:28.5	24m / ✓	1:09W	"	"	"	"	10.6	OB			-3	"	"	"	
	LS 832	7h 51.9	-26 27	"	5:43	8:13	150m / ✓	3:28 W	"	"	"	"	12 6	OB			-1	"	"	"	
	LS 742	7h 45.0	-26 26.4	"	8:19	8.25 s	6½m / ✓	3:40W	"	"	"	"	9.1	OB			+3	"	"	"	Nest 1s
2162	LS 695	7h 42m2	-34°16'	17 JAN 1981	1:31	2:41	70m / ✓	2·19E	~2"	3·33	100/0 8	120/7.0	11·7	OB+			-5	IIaD	M-S	CRd + PB	H=55 T=13 3/4 C
	LS 568	7h 34.2	-32° 31'	"	2.51.9	4:07	75m / ✓	0:25E	"	"	"	"	11 8	OB			-3	"	"	"	"
	LS 745	7h 45m0	-29°06'	"	4:13	7:13	3h / ✓	2:31 W	"	"	"	"	12·7	OB⁻			-1	"	"	"	"
	LS 870	7h 55.1	-28° 34'	"	7.205	7:44.5	24m / ✓	2:57W	"	"	"	"	10·6	OB+			+1	"	"	"	MOON SETTING
	LS 944	8h02.9	-26° 59'	"	7:55	8:10.	75m / ✓	3:10W	"	"	"	"	10·1	OB⁻			+3	"	"	"	
2163	LS 532	7h 32·3	-32°31'	18 JAN 1981	1 12	1 35	23m / ✓	2:58 E	2-3"	3·33	100/0 8	120/7.0	10·6	OB+			-5	IIaD	M-S	CRd + PB	H=45% T=13C Moon!
	LS 535	7 32·4	-33°25'	"	1 44	2 15	31m / ✓	2:11 E	"	"	"	"	10·9	OB⁻			-3	"	"	"	very faint companion ato west of 535
	LS 681	7 40.9	-33°47'	"	3 10½	3 27½	17m / ✓	1 07E	"	"	"	"	10 3	OB			-1	"	"	"	moon!
	LS 679	7 40·9	-32° 35'	"	3.30	3·50	20m / ✓	0.43E	"	"	"	"	10 4	OB⁻			+1	"	"	"	"
	LS 675	7 40·5	-32° 26'	"	4 10 s	4:12.3	110s / ✓	0:18E	"	"	"	"	77	OB+			+3	"	"	"	"
2164	LS 628	7 38.6	-32° 29'	18 JAN 1981	4 30 5	4 53 5	23m / ✓	0 12W	2-3"	3.33	100/0 8	120/7 0	10 6	OB⁻			-5	IIaD	M-S	CRd + PB	Moon!
	LS 891	7 57.2	-28° 32'	"	5:01	5:56.	55m / ✓	1 05W	"	"	"	"	11 5	OB			-3	"	"	"	"
	LS 888	7 56.6.	-29° 07'	"	6 00	6:37	37m / ✓	1:48W	"	"	"	"	11 1	OB			-1	"	"	"	"
	LS 823	7 59.0	-28 19	"	6:44	7:09	25m / ✓	2 25 W	"	"	"	"	10 6	OB			+1	"	"	"	
	LS 909	7 58 6.	-28° 46'	"	7.16½	7.41½	25m / ✓	2 49N	"	"	"	"	10 6	OB+			+3	"	"	"	"
	LS 872	7 55.2	-28 29	"	7:45	8:02	17m / U	3·07W	"	"	"	"	10 3	OB⁻			+5	"	"	"	

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG R	SP.	COMP KIND	COMP EXP	EXCIT. POS'N	EMUL	DEV	OBS	REMARKS
2165	SAO 198348	7h 38m 6	-37° 47'	19 JAN 1981	1:29 CS	1:41:45	2m 45s /	2.56E	2-3"	3.33	100 / 0.8	120 / 7.0	8.2	B8			-5	IIa D	M-S	CRd + PB	M~ 45E 7~ 13E MOON
	SAO 198481	7h 30m 7	-35° 39'	"	1:44:15	1:50:45	6½m /	2:30E	"	"	"	"	9.2	B1			-3	"	"	"	"
	SAO 197414	7h 25m 5	-35° 33'	"	1:56:41	2:03:N	6½m /	2:12E	"	"	"	"	9.2	A0			-1	"	"	"	"
	SAO 197988	7h 25.2	-35 33'	"	2:05:20	2:14:20	9m /	2:02E	"	"	"	"	9.6	A3			+1	"	"	"	"
	LS 701	7h 42.7	-29° 16'	"	2:19:00	2:42:00	23m /	1:50E	"	"	"	"	10.6	OB			+3	"	"	"	"
	LS 469	7h 29.4	-3[illegible] 18'	"	2:52:20	2:58:50	6½m /	1:18E	"	"	"	"	9.2	OB⁻			+5	"	"	"	"
2166	LS 594	7h 36.0	-34° 24	19 JAN 1981	03:19 20	3 39	20m /	0.47E	2-3"	3.33	100 / 0.8	120 / 7.0	10.4	OB⁻			-5	IIa D	M-S	CRd + PB	MOON
	SAO 198221	7h 37m 6	-34° 57'	"	3:44:15	3:45:29	345 /	0:42E	"	"	"	"	7.6	A0			-3	"	"	"	"
	LS 690	7h 31m 1	-32° 32'	"	3:49:00	3:50:20	1½m /	0:38E	"	"	"	"	7.7	OB⁺			-1	"	"	"	double exp.
	LS 710	7h 43m 5	-26° 41'	"	3:59:00	4:33	34m /	0:00W	"	"	"	"	11.0	OB⁻			+1	"	"	"	"
	LS 716	7h 43m 8	-26° 54'	"	4:35:30	4:42:30	7m /	0:07W	"	"	"	"	9.3	OB⁺			+3	"	"	"	"
	LS 827	7h 51m 6	-26° 22'	"	4:45:10	4:53:40	8½m /	0:12W	"	"	"	"	9.5	OB			+5	"	"	"	"
2167	LS 809	7h 48m 7	-26° 17'	21 JAN 1981	5:12	5:24	12m /	0:47W	2-3"	3.33	100 / 0.8	120 / 7.0	9.9	OB⁻			-5	IIa D	M-S	CRd + PB	= SAO 174610 MOON!
	LS 846	7h 52m 9	-26° 11'	"	5:29	5:40	11m /	0:58W	"	"	"	"	9.8	OB⁺			-3	"	"	"	"
	LS 778	7h 46m 3	-27° 51'	"	5:54	6:09	15m /	1:33W	"	"	"	"	10.1	BZ Iab			-1	"	"	"	"
	LS 821	7h 50m 3	-26° 08'	"	6:12:30	6:32	20m /	1:53W	"	"	"	"	10.4	OB			+3	"	"	"	NEW POSITION
	LS 840	7h 52.2	-27° 04'	"	6:35:30	6 50:30	15m /	2:08W	"	"	"	"	10.1	OB⁻			+1	"	"	"	" faint comp N NW
	LS 876	7h 55.7	-29° 22'	"	6:54:45	7:14:45	20m /	2:30W	"	"	"	"	10.4	OB⁺			+5	"	"	"	"
2168	LS 914	7h 59.0	-28° [illegible]	19 Jan 1981	7:27	7:48	21m	3:00W	"	"	"	"	10.5	OB⁻			-5	"	"	"	"
	LS 884	7 57.2	-27° 47'	"	7:50	7:54:45	4m 45s	3:03W	"	"	"	"	8.9	A0II			-3	"	"	"	"
	SAO 174656	7 50 1	-26° 06'	"	7:57:00	8 00.30	3m 30s	3:21W	"	"	"	"	8.6	B9			-1	"	"	"	faint comp on neutral
	SAO 174534	7 48.1	-26° 34'	"	8 03:30	8 08:00	4m 30s	3:30W	"	"	"	"	8.3	A0			+1	"	"	"	"
	174635	7 49.1	-26° 31'	"	8:10:00	8:13:40	3m 30s	3:35W	"	"	"	"	8.6	B8			+3	"	"	"	"
2169	NGC 226 #204	6 46 6	-20° 58'	20 JAN 1981	1:16	1:23:20	7½m /	2:10E	2"	3.33	100 / 0.8	120 / 7.0	9.01	-	= HD 49334		-5	IIa D	M-S	CRd + PB	T=13, H-S5, W=10 mm FULL MOON
	#115	"	"	"	01:35:15	1:55:00	19.5m /	1:36E	"	"	"	"	10.41	-			-3	"	"	"	"
	#25	"	"	"	1:59	2:11:30	12.5m /	1:20E	"	"	"	"	9.94	-			-1	"	"	"	" double exp (v. short)
	#30	"	"	"	2:18:10	2:25	6½m /	1.06E	"	"	"	"	9.24	-	= HD 49185		+1	"	"	"	"
	#44	"	"	"	2:28½	2:31	2½m /	1:00E	"	"	"	"	8.34		= HD 49151		+3	"	"	"	MOON
	#120	"	"	"	2:33:30	2:46:30	13m /	0:45 E	"	"	"	"	9.93	-			+5	"	"	"	"
2170	#107	[illegible]	"	"			6m	[illegible]	"	"	"	"	8.94	-				"	"	"	"

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP.	CALIB POS	EMUL	DEV	OBS	REMARKS
2170	NGC 2287 #107	6h 46m	-20° 58'	20 JAN 1981	3:17:10	3.23.10	6m / over	0.09 E	2"	3·33	100/0 8	120/7 0	8 89	-	=HD 44212		-5	IIaD	M-5	cRd + PB	FULL MOON
	~~#23~~ #21	"	"	"	3·27·30	3:32:30	~~over~~ 5m	0.01 W	"	"	"	"	~~8.35~~ 5.40	-			-3	"	"	"	"
	#2	"	"	"	3·38	3 43	5m / ✓	0:12 W	"	"	"	"	8 87	-	=HD 49106		-1	"	"	"	"
	#5	"	"	"	3·45·30	3:54	8½/ -	0.23 W	"	"	"	"	9.51	-			+1	"	"	"	"
	#14	"	"	"	3·56:45	4 16 45	20m / -	0.46 W	"	"	"	"	10 42	-			+3	"	"	"	"
	#51	"	"	"	4:20:15	4:27:15	7m / ✓	0'57W	"	"	"	"	9:32	-			+5	"	"	"	"
2171	NGC 2287 #92	6h 46m. 9	-20° 58'	20 JAN 1981	4 39	4·45	6m / J	1:10 W	2"	3·33	100/0·8	120/7.0	8·88	-			-5	IIaD	M-S	"	FULL MOON, FT. COMP TO S
	#109	"	"	"	4:50	4:56:30	6½m / /	1:25 W	"	"	"	"	9·16	-			-3	"	"	"	FULL MOON
	#97	"	"	"	5 05 15	5 12·15	7m / J	1.42 W	"	"	"	"	8·94	-			-1	"	"	"	"
	#70	"	"	"	5 14.45	5 20·45	6m / J	1 50 W	"	"	"	"	9 06	-			+1	"	"	"	"
	#103	"	"	"	5 23 50	5.25 38	2m 48s / /	1·55 W	"	"	"	"	8:34	-	= HD 49023		+3	"	"	"	"
	#61	"	"	"	5 31	5 35½	4½m / J	2:05 W	"	"	"	"	8·91	-			+5	"	"	"	"
2172	LS 919	7h 59m 2	-26° 01'	20 JAN 1981	05·56.45	6:11:45	15m /	1:27 W	2"	3·33	100/0 8	120/7.0	10 1	OB-			-5	IIaD	M-5	cRd + PB	FULL MOON EXPOSURE
	LS 938	8h 02m 4	-26° 57'	"	6:23:45		18m /						10·3	OB-			-3				
	LS 936	8 02·1	-26° 57'	"	6:43	7:01	18m / .	2.14 W	2"	3·33	100/0 4	120/7.2	10 3	OB-			-3	IIaD	M-S	cRd + PB	FULL MOON
	LS 919	7 59 2	-26° 01'	"	7:07:15	7·25 15	18m / /	2:34 W	"	"	"	"	10·1	OB			-1	"	"	"	"
	LS 942	8 02.7	-28° 36	"	7:33·40	7 51·40	18m / /	2·57 W	"	"	"	"	10 3	OB-			+1	"	"	"	"
	LS 948	8h 03 4	-27° 26'	"	7·58 30	8 10·30	12m / /	3 22 W	"	"	"	"	9 9	OB			+3	"	"	"	"
2173	NGC 2269 #119	6h 47·4	-20° 44	20/21 Jan 81	1·12·30	1: 24	11½m / ✓	2:07 E	< 2"	3·33	100/0 8	120/7.0	9 86	-			-5	IIaD	M-S	cRd + PB	T = 60°, H = 49% FULL MOON DEC GUIDED
	#117	"	"	"	1:50:45	1:58·45	8m / ✓	1:31 E	"	"	"	"	8·44	-			-3	"	"	"	
	#116	"	"	"	2:03:00	2: 04·45	100s / ✓	1:23 E	"	"	"	"	7.74	-			-1	"	"	"	Dec Guided.
	#6	"	"	"	2 14·45	2·28 15	13½m / ✓	1:01 E	"	"	"	"	10·0	-			+1	"	"	"	FULL MOON
	#102	"	"	"	2·32·45	2·34·45	2m / ✓	0·55E	"	"	"	"	7.86	-			+3	"	"	"	"
	#121	"	"	"	2·38·00	2:56: 00	18m / ✓	0·32 E	"	"	"	"	10·31	-			+5	"	"	"	"
2174	#106	"	"	"	3:11 00	3:17:30	6 5m / /	0 12 E	"	"	"	"	9.2	-			-5	"	"	"	"
	#93	"	"	"	3 20 40	3·26 30	6½m / /	0:02 E	"	"	"	"	4.67	-			-3	"	"	"	"
	#96	"	"	"	3 31 00	3.56.00	25m / /	0:28 W	"	"	"	"	10·58	-			-1	"	"	"	"
	#94	"	"	"	3.58·30	4:23:30	25m / ✓	1:02 W	"	"	"	"	10·53	-			+1	"	"	"	"
	#201	"	"	"	4·26. 15	4:44·15	18m / /	1:15 W	"	"	"	"	10·31	-			+3	"	"	"	"
	#75	"	"	"	4 50.30	4:55	4½m / /	1 26 W	"	"	"	"	8 69	-			+5	"	"	"	"

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC 1981	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB PS	EMUL	DEV	OBS	REMARKS
2175	NGC 2287 #54	6h 47.4m	-20° 44'	Jan 21	5:09:30	5:12:15	2m45s / -	~~1.45~~	~~3~~ ~2"	~~1~~ 3.55	~~100/0.80~~	120/7.0	8.27	-			-5	IIaD	M-5	CR + PB	Full Moon
	#85	"	"	"	5:19:40	5:36:40	17m / -	2.08 W	"	"	"	"	10.25	-			-3	"	"	"	"
	#108	"	"	"	5:40:25	5:41:55	4½m / -	2:17 W	"	"	"	"	8.76	-			-1	"	"	"	"
	#101	"	"	"	5:47:40	5:50:25	3m45s / -	2:22 W	"	"	"	"	8.27	-			+1	"	"	"	"
	LS 948	8h 03.1	-27° 26'	"	6:35.41	6:47.41	12m / ✓	2.03 W	"	"	"	"	9.9	OB			+3	"	"	"	"
	LS 780	7 46.8	-26 38	"	6:54:30	7:07:30	13m / UNDER	2.40 W	"	"	"	"	10.0	OB			+5	"	"	"	"
2176	LS 701	7 42.7	-29° 17'	"	7:26:15	7:51:15	25m / ✓	3:28 W	< 2"	3.33	100/0.8	120/7.0	10.6	OB			-5	IIaD	M-5	CR + PB	FULL MOON
	HD 75149	8 45.9	-15 51		8 24	8 24.1	15m / UNDER	2.59 W	"	"	"	"	5.71	B4Ia			-3	"	"	"	" GI OUT OF FOCUS
	"	"	"	"	8:25	8:25:15	15m / ✓	3:00 W	"	"	"	"	"	"	NeA	1s	-1	"	"	"	" in FOCUS.
2177	NGC 2287 #105	~~6h 47m 8~~ ~~H 20 20~~	- 20° 46'	22 JAN 1981	1:20 20	1:26.20	6m / ✓	1:56 E	2-3"	3.33	100/0.8	120/7.0	9.06	-			-5	IIaD	M-5	CR + PB	MOON RISE
	#39	"	"	"	1:34:00	1 54 00	20m / ✓	1:31 E	"	"	"	"	10.38	-			-3	"	"	"	"
	#49	"	"	"	1:53 30	2:20.30	27m / ✓	1:03 E	"	"	"	"	10.47	-			-1	"	"	"	H= 75% T= 12%
	#20	"	"	"	2:23:30	2:31:15	7m45s / ✓	0:52 E	"	"	"	"	9.39	-			+1	"	"	"	
	#63	"	"	"	2.34.40	2:43:10	8½m / ✓	0:37 E	"	"	"	"	9.52				+3	"	"	"	H=77½, STAR TO E JUST WIDENS SLIT
	#87	"	"	"	2 47:17	2:55 47	8½m / ✓	0:27 E	"	"	"	"	9.25	-			+5	"	"	"	
2178	~~#50~~	"	"	"	3:16:30	3:31.00	15m /	0:07 E	~3"	3.33	100/0.8	120/7.0	10.12	-			-5	IIaD	M-5	CR + PB	
	~~#3~~	"	"	"	3 40.33		18½m /	0:20 W	"	"	"	"	10.33	-			-3	"	"	"	H= 76% T=12%
	#3	6h 49m 8	- 20° 46'	"	3:58	4:16.30	18½m / ✓	0:54 W	~3"	3.35	100/0.8	120/7.0	10.33	-			-3	IIaD	M-5	CR + PB	MOON
	LS 688	7h 41.7	-30° 20'	"	4.23:20	4 46:20	23m / ✓	0:25 W	"	"	"	"	10.6	OB			-1	"	"	"	
	LS 874	7h 55.4	-28° 25'	"	5:05 20	5:23.20	31m / ✓	1.03 W	"	"	"	"	10.9	OB			+1	"	"	"	H= 76%
	LS 872	7h 55.2	-28 49	"	5:45:00	6:01:00	18m / ✓	1:30 W	"	"	"	"	10.3	OB-			+3	"	"	"	H= 74% T=10%
2179	LS 918	7h 59.0	-30 28	23 Jan 1981	1:08 33	2 08:33	60m / UNDER	2:25 E	"	"	"	"	11.5	OB+	MIS-ID!!		-5	"	"	"	Faint companion to South West H=75% H=24% T=12
	LS 925	8 00.2	- 29 02	"	2:15.00	3:09:00	54m / ✓	1.25 E	"	"	"	"	11.5	OB			-3	"	"	"	
	LS 896	~~7:57.6~~ ~~8 01.3~~	-26 31	"	3:26:00	4:16.00	50m / ✓	0:15 E	"	"	"	"	11.4	OB-			-1	"	"	"	¾ ⊄
	LS 825	7 51.3	-27 37	"	4:22:05	5 07:00	~~10m~~ 45m / ✓	0 46 W	"	"	"	"	11.3	OB-			+1	"	"	"	H=60% T=12%
	LS 864	7 54.8	-27 51	"	5:14 40	5 59.40	45m / -	1:30 W	"	"	"	"	11.3	OB-			+3	"	"	"	H=52% T=12%
	LS 920	8:00:48	~~-29~~ 47 04	"	6 07:45	8:03:45	~~185m~~ 105m / ✓	~~1:55~~ 3.36 W	"	"	"	"	12.2	OB			+5	"	"	"	
2180	NGC 2287 #78	6 46.1	- 20 45	23/24 JAN 1981	1:12:30	1:44.30	32m / ✓	1:30 E	~3" SOME HAZE	3.33	100/0.8	120/7.0	10.90	-			-5	IIaD	M-5	CR + PB	H=64, T=13 CLOUD CHASE TO E
	LS 890	7 57.2	-29 03	"	1:56:15	5 26:30	22m / ✓	1.10 W	"	"	"	"	13.0	OB-			-3	"	"	"	SOME HEAVY CLOUDS
	LS 859	7 54.5	-27 41	"	6:01:30	6:36 00	~~24m~~ 14½ / ✓	2:11 W	"	"	"	"	11.0	OB-			-1	"	"	"	

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 311
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T.	U.T. EXP /ST BEGIN	U.T. EXP /ST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB. POS	EMUL.	DEV.	OBS.	REMARKS
~~2180~~																					
2180	LS 919	7 52.2	-26 01	Jan 24	6:51:30	7:11 30	20m /	2 53 w	3"/clouds	3.33	100/.80	120/7.0	10.1	OB			+1	IaD	M-S	PB+CRd	Heavy cloud
2181	LS 871	7 55.1	-28 33	24/25 JAN 81	01:00 00	6:00:00	300m / J	1'40 w	~.3"	3.33	100/0.8	120/7.0	13.2	OB			-5	IIaD	M-S	PB+CRd	clear 1:52 17+80
	LS 799	7 47.9	-30 41	"	06.00:50	8:28:00	170m / wind	4:17 w	<3"	"	"	"	12B	OB+			-3	"	"	"	clear with moon
2182	LS 749	7 45.2	-29 30	25/26 JAN 81	01:10:00	4:40:00	180m / J	0.03 w	~3"	3 33	100/0.8	120/7.0	12.7	OBT			-5	IIaD	M-S	"	
	LS 858	~~7 54.4~~ ~~4:28:40~~	-28 12	"	4:28:40	7:18:40	170/ ✓	3.05 w	" some haze	"	"	"	12.7	OB			-3	"	"	"	
	LS 847	7 52.8	-28 41	"	7:26	8:11	45m / J	3.57 w	"	"	"	"	11.2	OB	NeA	10	-1	"	"	"	½ ☾
2183	45 RZ ARI	2h54.m7	+18°16′	JAN 27	1:26	1:40	13m/14m	✓✓	1"/clear	3.33	100/0.8	120/7.0	✓(V) 5.9	M6III	NeA	10^5	9	IIa-O	MWP-2	Crw	H=63% T=14°C
~~2185~~	DG ERI	4h19.m8	-16°52′	[redacted]	5:07 1:50	5:22 2:23	30m/33m	WEAK				W.B.W.G B-V?	7.0	M4III			11				
	R HOR	2h53.m2	-49°58′		5:31 2:45	6:05 4:24	93m/99m	EXCELLENT					<7.6	M5-M7e(II-III)			13				
	S PIC	5h10.m5	-48°32′		6:26 4:36	8:00 5:37	58m/61m	✓✓					✓7.2?	M7e-M8e(III-II)			15				
	S CAR	10h08.m7	-61°27′		8:18 5:53	9:19 6:12	20m/19m	SL WEAK				W.B.W.G B-V?	>6.7?	K7e-M4e			17				
	V ANT	10h20.m3	-34°42′		9:35 6:23	9:54 7:43	75m/80m	GOOD			100/0.6		✓8.3?	M7IIIe			19				
	R HYA	13h28.m3	-23°11′		10:05 7:54	11:20 8:54	56m/60m	EXCELLENT			100/0.8		✓7.4	M6e-M8e(S)			21				
	56 VV LEO	10h55.m0	+6°17′		11:36 9:02	12:37 9:17	13m/15m	✓✓					✓6.0	M5-5III	NeA	10^5	23				H=56% T=12°C
2184	O CET	2h18.m3	-3°04′	JAN 28	12:45 1:11	13:02 1:56	44m/45m	✓✓	1"/clear	3.36	100/0.8	120/7.0	✓7.2?	M5e-M8e	NeA	10^5	9	IIa-O	MWP-2	Crw	H=55% T=15° / COMPARISON AT 3.33
	DG ERI	4h19.m8	-16°52′		4:56 2:01	5:44 3:02	54m/61m	✓ GOOD				B-V =1.8	✓7.2	M4III			11				
	T ERI	3h54.m4	-24°05′		5:46 3:09	6:48 4:51	180m/102m	VERY GOOD			100/0.6		✓8.5?	M3e-M5e			13				
	S CAR	10h08.m7	-61°27′		6:55 5:15	8:57 5:50	40m/41m	✓✓ HHK perfect			100/0.8	B-V =1.7	✓7.0	K7e-M4e			15				SPOT CALIBRATION
	U OCT	13h22.m0	-84°07′		9:01 6:48	9:42 8:11	83m/83m	SL WEAK			100/0.6	B-V =1.3?	8.5?	M4e-M6(IIIe)			19				
	T NOR	15h42.m6	-54°56′		10:35 8:17	11:57 9:21	62m/64m	GOOD					✓8.0	M3e-M6	NeA	10^5	21				H=64% T=13°C
2185	R CAE	4h39.m8	-38°16′	JAN 29	12:03 0:57	13:07 2:49	111m/112m	✓✓	1"/clear	3.36	100/0.6	120/7.0	✓8.3?	M6e	NeA	10^5	9	IIe-O	MWP-2	Crw	H=61% T=14°C
	T COL	5h18.m6	-33°44′		4:46 2:55	6:38 4:25	88m/90m	GOOD					✓8.5	M4e-M6			11				
	π LEO	9h59.m1	+8°08′		6:44 4:10	8:15 4:45	5m/5m	✓ SL wk HHK			100/0.8	B-V =1.7	✓4.7	M2IIIab			13				
	BK VIR	12h29.m3	+4°31′		8:29 4:58	8:34 —	67m/CANCELLED				100/0.6		7.9?	M7 III			15				TOO INACCESSIBLE!
	γ VIR	12h53.m2	-9°26′		8:47 5:09	— 5:15	6m/6m	GOOD			100/0.8	B-V =1.2	✓4.8	M3III			15				
	W VIR	11h37.m5	+8°14′		8:54 5:23	9:05 5:32	8½m/8½m	SL wk HHK				B-V =1.6	✓5.5	M4-4.5III			17				
	SW VIR	13h13.m0	-2°43′		9:13 5:49	9:22 6:59	68m/70m	VERY GOOD LINE STRONGLY			100/0.6		✓7.9?	M7III			19				
	R NOR	15h34.m6	-49°27′		9:39 7:06	10:49 8:26	118m/80m	TOO WEAK					>8.3?	M3e-M4III			21				
	RS SCO	16h54.m2	-45°04′		10:57 8:30	12:19 9:23	59m/53m	SL WEAK					>8.0	M5e-M8e	NeA	10^5	23				T=14°C H=68% WIND =17-2 mph
					12:21	13:14															

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T. 1981	U.T. EXP. / ST BEGIN	U.T. EXP. / ST END	TOTAL / CORR.	HA. END QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. V	SP.	COMP KIND	COMP EXP	CALIB Pos'N	EMUL	DEV	OBS	REMARKS
2186	45 RZ ARI	$2^h54.^m7$	+18°16′	JAN 30	1:00	1:02	$84^s/90^s$	✓ TOO LONG!	1"/CLEAR	3.36	100/0.8	120/h.0	5.9	M6III	NeA	1S	-5	IIa-D	M-5	CRW	T=15°C H=64%
	O CET	$2^h18.^m3$	−3°04′		1:09	1:14	$4½^m/5¼^m$ ✓ sl strong						7.2	M5e-M8e			-4	(SPOT CALIBRATED)			1m @ 14 V 5m @ 10 V SPOT CALIBRATED
	DG ERI	$4^h19.^m8$	−16°52′		1:22	1:27	$5½^m/5¼^m$ sl wk H+K *						7.2	M4III			-3				
	V HOR	$3^h03.^m0$	−59°00′		1:35	1:44	$8½^m/8½^m$ sl wk H+K *						>8.0?	M5III			-2				
	δ LEP	$6^h04.^m4$	−24°11′		1:53	1:55	$125^s/125^s$ WEAK *						>6.5?	M6III	NeA	1S	-1				
	R HOR	$2^h53.^m2$	−49°58′		2:14	2:20	$6^m/6^m$ ✓ sl strong *						<7.2	M5-M7e(II-III)			+1				
	T ERI	$3^h54.^m4$	−24°05′		2:28	2:41	$13½^m/14^m$ ✓✓						8.5	M3e-M5e			+2				
	R CAE	$4^h39.^m8$	−38°16′		2:48	3:04	$15^m/16^m$ ✓✓						8.3	M6e			+3				
	S PIC	$5^h10.^m5$	−48°32′		3:12	3:17	$5½^m/5½^m$ ✓✓						7.2	M7e-M8e(III-II)			+4				
	T COL	$5^h18.^m6$	−33°44′		3:25	3:44	$15^m/16^m$ ✓✓						8.6	M4e-M6	NeA	1S	+5				
2187	Z PUP	$7^h31.^m6$	−20°37′		4:16	5:02	$43^m/46^m$ ✓ sticky *						9.8	M4e-M8e			-5				
	R CAR	$9^h31.^m7$	−62°42′		5:22	5:45	$21½^m/23^m$ ✓✓						9.0	M4e-M8e			-3				
	S CAR	$10^h08.^m7$	−61°27′		5:49	5:53	$4^m/4^m$ H+K ✓ * sl strong						<7.0	K2e-M4e			-1				
	W VEL	$10^h11.^m5$	−54°23′		5:56	6:21	$33^m/33^m$ ✓✓						9.3	M5IIIe			+1				
	X CEN	$11^h48.^m2$	−41°39′		6:41	7:01	$21^m/20^m$ ✓ sl wk						>9.0	M5e-M6e			+3				
	W CEN	$11^h54.^m1$	−59°09′		7:05	7:29	$23^m/24^m$ ✓ sl wk						>9.0	M3e-M5IIIe	NeA	1S	+5				T=14°C H=64% QUIT DUE TO COLD!
2188	45 RZ ARI	$2^h54.^m7$	+18°16′	FEB 1	0:52	0:54	$84^s/110^s$ 6 TRAILS sl strong		1"/CLEAR	F 3.36	100/0.8	120/h.0	7.4	M6III			-5	IIa-D	M-5	CRW	T=14°C H=64%
	O CET	$2^h18.^m3$	−3°04′		1:01	1:06	$4½^m/5¼^m$ 8 TRAILS ✓ sl strong						7.2	M5e-M8e			-4	(SPOT CALIBRATED)			1m @ 14 V 5m @ 10 V SPOT CALIBRATED
	DG ERI	$4^h19.^m8$	−16°52′		1:18	1:24	$5¼^m/6.25^s$ 22 TRAILS H+K sl wk						7.2	M4III			-3				
	V HOR	$3^h03.^m0$	−59°00′		1:34	1:45	$8½^m/11¼^m$ N+K sl wk						>8.0	M5III			-2				
	δ LEP	$6^h04.^m4$	−24°11′		1:55	2:00	$5½^m/4.25^s$ 14 TRAILS ✓✓						>7.0	M6III	NeA	1S	-1				
	R HOR	$2^h53.^m2$	−49°58′		2:11	2:16	$5^m/5^m$ ✓ sl strong						<7.0	M5-M7e(II-III)			+1				
	Z PUP	$7^h31.^m6$	−20°37′		2:24	3:17	$52^m/53^m$ SPECTRUM DISPLACEMENT! *						10.0	M4e-M9e			+2				
	RV PUP	$6^h41.^m9$	−42°21′		3:24	4:17	$46^m/53^m$ WEAK at H+K						>9.5?	M1e			+3				Changed mind: V=9.7, B-V=1.8?
	AS PUP	$8^h09.^m0$	−38°07′		4:25	4:59	$32½^m/34^m$ ✓ sl strong						<9.3	M7e			+4				
	S CAR	$10^h08.^m7$	−61°27′		5:06	5:09	$3^m/3¼^m$ ✓✓						6.8	K2e-M4e	NeA	1S	+5				
2189	V ANT	$10^h20.^m3$	−31°42′		5:38	5:55	$16^m/17^m$ ✓✓						8.5?	M7IIIe			-5				
	RS CEN	$11^h19.^m6$	−61°46′		6:05	7:06	$59^m/61^m$ ✓ sl wk H+K						>9.7	M1e-M4e			-3				
	U OCT	$13^h22.^m0$	−84°07′		7:13	7:36	$16^m/18^m$ ✓ sl wk H+K						>8.5	M4e-M6e(II-IIIa)	NeA	1S	-1				
	R HYA	$13^h28.^m6$	−23°11′		7:48	7:53	$5¼^m/5¼^m$ ✓ sl strong *						<7.2	M6e-M8e(S)			+1				

THIS PLATE IS SLIGHTLY OUT OF FOCUS!

UNIVERSITY OF TORONTO

✓ GOOD ✓✓ EXCELLENT * REPORTS

LAS CAMPANAS OBSERVATORY (24-INCH)

✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T. 1981	U.T. EXP. / ST BEGIN	U.T. EXP. / ST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. (V)	SP.	COMP. KIND	COMP. EXP	~~CALIB.~~ Pos'N	EMUL.	DEV.	OBS.	REMARKS
2189	RT CEN	13h46.m9	−36°46′	FEB 1	8:02 12:04	8:44 12:46	40m/42m	✓ sl wk HAZE	1"/CLEAR	3-36	100/0.8	120/h.0	✓9.5	M6IIIe			+2	IIa-D	M-5	CTW	T=13°C H=68%
	T NOR	15h42.m6	−54°56′		8:49 12:51	8:58 12:59	9m/8m	✓✓					✓8.0	M3e-M6			+3				
	RS SCO	16h54.m2	−45°04′		9:03 13:05	9:16 13:18	11m/13m	✓ sl strong					<8.2	M5e-M8e	NeA	1s	+4				T=13°C H=64%
2190	45 RZ ARI	2h54.m7	+18°16′	FEB 2	1:08 5:13	1:10 5:15	84s/90s	5 TRAILS ✓✓	2"/CLEAR	3-36	100/0.8	120/h.0	✓5.9	M6III			−5	IIa-D	M-5	CTW	T=15° H=60%
	O CET	2h18.m3	−3°04′		1:17 5:22	1:22 5:27	4½m/5¼m	18 TRAILS ✓					>7.2	M5e-M7e			−4	(SPOT CALIBRATED)			4m @ 10 V SPOT CALIBRATED
	DG ERI	4h19.m8	−16°52′		1:31 5:36	1:38 5:43	4m/7m	ADD 0.6m ✓ still sl wk					>7.2	M4+III			−3		DG ERI	V=7.2 B-V=1.7 +0.4m	V=7.6 B-V=1.7 ?
	V HOR	3h03.m0	−59°00′		1:46 5:51	2:01 6:06	10½m/15½m	ADD 0.6m ✓ sl strong					✓8.2	M5III			−2		V HOR	V=8.1 B-V=1.5 +0.4m	V=8.5 B-V=1.5 ?
	δ LEP	6h04.m4	−24°11′		2:10 6:15	2:15 6:20	3½m/5¼m	ADD 0.4m ✓✓					>7.0	M6III	NeA	1s	−1		δ LEP	V=7.1 B-V=1.5 +0.4m	V=7.5 B-V=1.5 ?
	R HOR	2h53.m2	−49°58′		2:24 6:29	2:35 6:40	3½/5m, 3¼m	5m STRONG * 4m sl strong					<6.6	M5-M7e (II-III)			+1				V=6.3 B-V=1.9 ?
	Z PUP	7h31.m6	−20°37′		2:44 6:49	3:38 7:43	52m/54m	✓✓					✓10.0	M4e-M4e			+3				
	RV PUP	6h41.m9	−42°21′		3:46 7:51	4:56 9:01	40m/70m	ADD 0.6m ✓ still sl wk					>9.7	M1e			+4		RV PUP	V=9.7 B-V=1.7 +0.4m	V=10.0 B-V=1.7 ?
	AS PUP	8h09.m0	−38°07′		5:01 9:07	5:22 9:28	21m/21m	✓✓					✓9.0	M7e	NeA	1s	+5				
2191	RS CEN	11h19.m6	−61°46′		5:47 9:53	7:13 11:19	60m/87m	ADD 0.4m ✓ still sl wk	1"/CLEAR				>9.7	M4e-M4e			−5		RS CEN	V=9.7 B-V=1.9 +0.4m	V=10.0 B-V=2.0 ?
	U OCT	13h22.m0	−84°07′		7:27 11:32	7:52 11:57	25m/25m	✓ bit streaky					✓9.0	M4e-M6 (II-III)			−3				
	R HYA	13h22.m0	−23°11′		8:00 12:06	8:03 12:09	3m/2¾m	✓ sl strong *					<6.6	M6e-M8e(5)	NeA	1s	−1				V=6.3 B-V=1.7 ?
	R NOR	15h34.m6	−49°27′		8:09 12:15	8:57 12:43	27m/28m	✓ sl wk					>9.0?	M3e-M6III			+1				
	RR SCO	16h55.m4	−30°33′		8:43 12:50	9:03 13:10	18m/20m	✓ sl strong *					<8.5?	M6II-IIIe - M8(III)e			+3				V=8.2 B-V=1.5 ?
	RS SCO	16h54.m2	−45°04′		9:12 13:18	9:21 13:27	9m/9m	✓✓					✓8.0	M5e-M8e	NeA	1s	+5				T=15° H=38%
2192	S SCL	0h14.m4	−32°09′	FEB 3	0:54 5:03	1:59 6:08	52m/65m	sl weak *	1"/CLEAR	3-36	100/0.8	120/h.0	✓9.7	M8e-M8e			−5	IIa-D	M-5	CTW	T=15°C H=62%
	O CET	2h18.m3	−3°04′		2:16 6:25	2:21 6:30	5¼m/5½m	sl weak					>7.2	M5e-M7e			−4	(SPOT CALIBRATED) 4m @ 10 V			WEAK DUE TO INVERSION HAZE
	45 RZ ARI	2h54.m7	+18°16′		2:31 6:40	2:33 6:42	2m/2m	✓ sl weak					✓5.9	M6III			−3				
	DG ERI	4h19.m8	−16°52′		2:40 6:49	2:47 6:56	7m/7m	ADD 0.4m ✓ sl wk					✓7.2	M4III			−2				
	δ LEP	6h04.m4	−24°11′		2:56 7:05	3:01 7:10	5m/5m	ADD 0.4m ✓					✓7.1	M6III	NeA	1s	−1				
	U TOC	0h56.m6	−75°06′		3:11 7:20	3:54 8:03	35m/43½m	ADD 0.4m ✓✓					✓8.7	M3e-M5e			+1				
	R HOR	2h53.m2	−49°58′		4:04 8:13	4:07 8:16	3m/3m	✓✓					✓6.3	M5-M7e (II-III)			+2				
	R CHA	8h22.m3	−76°18′		4:27 8:37	5:01 9:11	30m/34m	WEAK *					>9.3	M6e-M7e			+3		R CHA	V=9.8 B-V=1.5	
	X CEN	11h48.m2	−41°39′		5:14 9:24	5:41 9:51	28m/27m	✓					✓9.3	M5e-M6e			+4				
	W CEN	11h54.m1	−59°09′		5:46 9:56	6:16 10:26	28m/30m	sl weak					>9.1	M3e-M8(III)e	NeA	1s	+5				
2193	XZ CEN	12h23.m2	−35°31′		6:42 10:52	8:23 12:33	99m/101m	sl weak					>10.7	M5			−5		XZ CEN	V=11.1 B-V=1.5	
	S LIB	15h20.m2	−20°19′		8:35 12:45	9:29 13:34	68m/49m	sl strong *					<9.5	M2e	NeA	1s	−3		S LIB	V=9.0 B-V=2.0 +0.4m	T=15°C H=61%

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

✓ GOOD ✓✓ EXCELLENT * REPEATS — ✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA 1981	DEC 1981	DATE U.T. 1981	U.T. EXP / ST BEGIN	U.T. EXP / ST END	TOTAL / CORR.	~~Mak. END.~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (V)	SP.	COMP KIND	COMP EXP	~~CALIB.~~ AS'N	EMUL.	DEV.	OBS.	REMARKS
2189	RT CEN	13h46.m9	-36°46′	FEB 1	8:02	8:44	40m/42m	✓ sl wk HAZE	1"/CLEAR	3·36	100/0.8	120/h.0	✓9.5	M6-IIIe			+2	IIIa-D	M-5	CRW	T=13°C H=68%
	T NOR	15h42.m6	-54°56′		8:49	8:58	9m/9m	✓✓					✓8.0	M3e-M6			+3				
	RS SCO	16h57.m2	-45°04′		9:03	9:16	11m/13m	✓ sl strong					<8.2	M5e-M8e	N:A	1S	+4				T=13°C H=64%
2190	45 RZ ARI	2h57.m7	+18°16′	FEB 2	1:08	1:10	84S/90S	5 TRANS ✓✓	2"/CLEAR	3·36	100/0.8	120/h.0	✓5.9	M6III			−5	IIIa-D	M-5	CRW	T=15°C H=60%
	O CET	2h18.m3	-3°04′		1:17	1:22	4½m/5¼m	18 TRANS ✓					>7.2	M5e-M7e			−4	(SPOT CALIBRATED)			4m@10V SPOT CALIBRATED
	DG ERI	4h19.m8	-16°52′		1-31	1:38	4m/7m	ADD 0.6m ✓ stars sl wk					>7.2	M4III			−3		DG ERI	{V=7.2 B-V=1.7 +0.4m: V=7.6 B-V=1.7}?	
	V HOR	3h03.m0	-59°00′		1:46	2:01	10½m/15½m	ADD 0.6m ✓ sl strong					✓8.2	M5III			−2		V HOR	{V=8.1 B-V=1.5 +0.4m: V=8.5 B-V=1.5}?	
	δ LEP	6h04.m4	-24°11′		2:10	2:15	3½m/5¼m	ADD 0.6m ✓✓					>7.0	M6III	N:A	1S	−1		δ LEP	{V=7.1 B-V=1.5 +0.4m: V=7.5 B-V=1.5}?	
	R HOR	2h53.m2	-49°58′		2:24	2:35	3½m/5¾m	5" STRONG * 4" sl strong					<6.6	M5-M7e (II-III)			+1				V=6.3 B-V=1.7}?
	Z PUP	7h31.m6	-20°37′		2:44	3:38	52m/54m	✓✓					✓10.0	M4e-M4e			+3				
	RV PUP	6h41.m9	-42°21′		3:46	4:56	40m/70m	ADD 0.6m ✓ stars sl wk					>9.7	M1e			+4		RV PUP	{V=9.7 B-V=1.7 +0.4m: V=10.0 B-V=1.7}?	
	AS PUP	8h09.m0	-38°07′		5:01	5:22	21m/21m	✓✓					✓9.0	M7e	N:A	1S	+5				
2191	RS CEN	11h19.m6	-61°46′		5:47	7:13	60m/87m	ADD 0.4m ✓ stars sl wk	1"/CLEAR				>9.7	M4e-M4e			−5		RS CEN	{V=9.7 B-V=1.9 +0.4m: V=10.0 B-V=2.0}?	
	U OCT	13h22.m0	-84°07′		7:27	7:52	25m/25m	✓ v.t. strongly					✓9.0	M4e-M6(II-III)			−3				
	R HYA	13h22.m0	-23°11′		8:00	8:03	3m/2¾m	✓ sl strong *					<6.6	M6e-M8e(S)	N:A	1S	−1				V=6.3 B-V=1.7}?
	R NOR	15h34.m6	-49°27′		8:09	8:37	27m/28m	✓ sl wk					>9.0?	M5e-M6III			+1				
	RR SCO	16h55.m4	-30°55′		8:43	9:03	18m/20m	✓ sl strong *					<8.5?	M6II-IIIe - M8(IIIe)			+3				V=8.2 B-V=1.5}?
	RS SCO	16h59.m2	-45°04′		9:12	9:21	9m/9m	✓✓					✓8.0	M5e-M8e	N:A	1S	+5				T=15°? H=38%
2192	S SCL	0h14.m4	-32°09′	FEB 3	0:57	1:50	52m/65m	sl weak *	1"/CLEAR	3·36	100/0.8	120/h.0	✓9.7	M8e-M8e			−5	IIIa-D	M-5	CRW	T=15°C H=67%
	O CET	2h18.m3	-3°04′		2:16	2:21	5¼m/5½m	sl weak					>7.2	M5e-M7e			−4	(SPOT CALIBRATED) 4m @10V			WEAK DUE TO INVERSION HAZE
	45 RZ ARI	2h57.m7	+18°16′		2:31	2:33	2m/2m	✓ sl weak					✓5.9	M6III			−3				
	DG ERI	4h19.m8	-16°52′		2:40	2:47	7m/7m	ADD 0.6m ✓ sl wk					✓7.2	M4III			−2				
	δ LEP	6h04.m4	-24°11′		2:56	3:01	5m/5m	ADD 0.4m ✓					✓7.1	M6III	N:A	1S	−1				
	U TOC	0h56.m6	-75°06′		3:11	3:54	35m/43½m	ADD 0.4m ✓✓					✓8.7	M3e-M5e			+1				
	R HOR	2h53.m2	-49°58′		4:07	4:07	3m/3m	✓✓					✓6.3	M5-M7e(II-III)			+2				
	R CHA	8h22.m3	-76°18′		4:27	5:01	30m/34m	WEAK *					>9.3	M6e-M7e			+3		R CHA	{V=9.8 B-V=1.5	
	X CEN	11h48.m2	-41°39′		5:14	5:41	28m/27m	✓					✓9.3	M5e-M6e			+4				
	W CEN	11h57.m1	-59°09′		5:46	6:16	28m/30m	✓ sl wk					>9.1	M3e-M6(IIIe)	N:A	1S	+5				
2193	XZ CEN	12h23.m2	-35°31′		6:42	8:23	99m/101m	✓ sl wk					>10.7	M5			−5		XZ CEN	{V=11.1 B-V=1.5	
	S LIB	15h20.m2	-20°19′		8:35	9:24	68m/49m	✓ sl strong *					<9.5	M2e	N:A	1S	−3		S LIB	{V=9.0 B-V=2.0 +0.4m: T=15°? H=61%	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 345

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC 1981	DATE U.T. 1981	UT EXP / ST BEGIN	UT EXP / ST END	TOTAL / CORR.	H.A. END QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (V)	SP	COMP KIND	COMP EXP.	CALIB POS'N	EMUL	DEV	OBS	REMARKS
2197 (CONT)	56 VV LEO	10h55m0	+6°17′	FEB 5	5:09 9:26	5:11 9:28	84s/85s	5 strong trails ✓	1"/CLEAR	3·36	100/0.8	120/h.0	6.0	M5.5III			-4	IIa-D	M-S	CTW	T=15° H=56% V=5.2 B-V=1.5?
	BK VIR	12h29m3	+4°31′		5:18 9:35	5:30 9:48	12m/12m	sl strong ✓					<8.2	M7III			-3				V=7.8 B-V=1.5?
	W VIR	11h37m5	+8°14′		5:36 9:53	5:37 9:54	54s/50s	3 trails ✓					✓5.5	M4-4.5III			-2				
	SW VIR	13h13m0	-2°43′		5:43 10:00	5:53 10:10	9m/10m	sl strong ✓					<7.9	M7III	NeA	1s	-1				V=7.5 B-V=1.5?
	R HYA	13h28m6	-23°11′		5:58 10:15	6:00 10:17	2¼m/1¾m	6 trails ✓					✓6.3	M6e-M8e(S)			+1				
	T CEN	13h46m6	-33°30′		6:07 10:25	6:14 10:32	6m/7m	✓ sl weak					✓7.4	K0e-M6e(SB)			+2				
	W HYA	13h47m9	-28°16′		6:19 10:37	6:32 10:50	12m/13m	✓✓					✓8.0	M8e-M8e(SB)			+3				
	EV VIR	14h12m0	-13°46′		6:42 10:59	6:46 11:03	4½m/4¼m	✓ sl weak					✓7.2	M4-4.5III-III			+4				
	Q APS	14h03m5	-76°42′		6:55 11:12	6:57 11:14	110s/150s	2 ✓ trails sl strong					✓6.2?	M6.5III	NeA	1s	+5				V=5.8 B-V=1.5?
2198	RT CEN	13h46m9	-36°46′		7:18 11:36	8:23 12:41	60m/65m	ADD 0.4 mag ✓✓					✓9.5	M6e			-5	(SPOT CALIBRATED 4m @ 10 VOLTS)			
	RX BOO	14h23m3	+25°47′		8:31 12:48	8:46 13:03	13m/15m	✓✓					✓8.0?	M7.5-8			-3				
	RR SCO	16h55m4	-30°33′		8:50 13:08	9:03 13:21	11m/13m	✓✓					✓8.2	M6e-M8e			-1				
	T NOR	15h42m6	-54°56′		9:10 13:28	9:24 13:42	12½m/14m	ADD 0.4 mag ✓✓					✓8.0	M3e-M6	NeA	1s	+1				T=14°C H=57%
2199	R IND	22h34m7	-67°24′	FEB 6	0:47 5:08	1:48 6:09	42m/61m	DARK ADD 0.4 mag sl wk ✓	1"/CLEAR	3·36	100/0.8	120/h.0	9.1	M2e-M4e			-5	IIa-D	M-S	CTW	T=15°C H=51%
	45 RZ ARI	2h54m7	+18°16′		2:02 6:28	2:04 6:30	100s/110s	6 trails sl wk ✓					✓5.9	M6III			-4	(SPOT CALIBRATED 1m @ 14 VOLTS)			
	O CET	2h18m3	-3°04′		2:09 6:30	2:19 6:40	9½m/10m	✓✓					✓7.8	M5e-M7e			-3				
	V HOR	3h03m0	-59°00′		2:27 6:48	2:43 7:04	14½m/16m	ADD 0.4 mag ✓					✓8.1	M5III			-2				FOCUSING PROBLEMS
	R HOR	2h53m2	-49°58′		2:49 7:10	2:51 7:12	2½m/2¼m	✓					✓6.0	M5-M6e(II-III)	NeA	1s	-1				
	DG ERI	4h19m8	-16°52′		2:58 7:19	3:06 7:27	7½m/8m	✓ sl wk					✓7.6	M4III			+1	PLATE SCRATCH			
	R DOR	4h36m5	-62°07′		3:13 7:34	3:14 7:35	40s/32s	1 TRAIL WEAK TOO	cloud DUE TO HAZE?				>5.2?	M8eIII			+2				
	S6 VV LEO	10h55m0	+6°17′		3:21 7:42	3:22 7:43	60s/55s	3 trails sl wk					✓5.5?	M5.5III			+3				
	BK VIR	12h29m3	+4°31′		3:30 7:51	3:45 8:06	13m/15m	sl wk	DUE TO LOW HAZE?				✓7.8	M7III			+4				
	SW VIR	13h13m0	-2°43′		3:52 8:12	4:04 8:24	10½m/11m	1m LOST sl wk					✓7.5	MIII	NeA	1s	+5				LOST STAR FOR ~1m
2200	R DOR	4h36m5	-62°07′		5:13 9:34	5:20 9:41	7m/7¼m	✓✓		3·36	100/0.8	120/h.0	✓5.2	M8eIII	NeA	10s	9	IIa-O	MWP-2		
	S PIC	5h10m5	-48°32′		5:27 9:49	6:27 10:49	56m/60m	✓✓					✓7.0	M7e-M8e(III-II)			11				
	R HYA	13h28m6	-23°11′		6:42 11:03	7:03 11:24	21m/21m	✓✓					✓6.3	M6e-M8e(S)			13				
	W HYA	13h47m9	-28°16′		7:06 11:28	8:27 12:49	86m/81m	✓✓			100/0.6		✓8.0	M8e-M9(SB)			15				T=12°C H=55%
	EV VIR	14h12m0	-13°46′		8:32 12:54	8:57 13:19	26m/25m	✓ sl wk					✓7.2	M4-4.5II-III			17				
	Q APS	14h03m5	-76°42′		9:02 13:24	9:15 13:37	10½m/13m	✓✓			100/0.8		✓5.8	M6.5III			19				
	2 CEN	13h48m3	-34°21′		9:18 13:40	9:28 13:50	9m/10m	TOO STRONG					<5.4?	M2IIIab-	NeA	10s	21				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

✓ GOOD ✓✓ EXCELLENT ✓ CORRECT

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC 1981	DATE U.T. 1981	U.T. EXP / ST BEGIN	END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (V)	SP.	COMP KIND	COMP EXP	~~CALIB~~ POS'N	EMUL	DEV	OBS	REMARKS
2201	γ ERI	3h57.1m	-13°34'	FEB 7	2:00 6:25	2:10 6:35	7m/10¼m	✓✓	2"-3"/CLEAR	2.85	50/1.2	67/5.05	✓3.2	M1III	NoA	57s	10	IIa-O	M-S	Crw	T=14°C H=54%
	R HOR	2h53.2m	-49°58'		2:16 6:40	3:33 7:58	81m/77½m	✓✓	1"-2"/CLEAR		50/0.8		✓6.0	M5-M7e(II-III)			12	(SPOT CALIBRATION sl wk)			A10 present!
	R DOR	4h36.5m	-62°07'		3:44 8:09	4:16 8:41	32m/32m	✓ sl wk					✓5.2	M8e III			14				
	S PIC	5h10.5m	-48°32'		4:20 8:45	5:56 10:21	87m/96m	WEAK	1"/CLEAR				✓7.0	M7e-M8e(III-II)			16				
	π LEO	9h59.1m	+8°08'		6:06 10:32	6:17 10:43	10m/11m	sl WEAK					✓4.7	M2 IIIab			18				SEEING IS CRITICAL TO GET PROPER EXPOSURE TIME!
	56 W LEO	10h55.0m	+6°17'		6:22 10:48	6:47 11:13	24m/25m	✓					✓6.0	M5.5 III			20				
	W VIR	11h37.5m	+8°14'		6:52 11:17	7:07 11:32	15m/15m	WEAK					✓5.5	M4-4.5 III			22				
	S CAR	10h08.7m	-61°27'		7:13 11:39	8:05 12:31	55m/52m	WEAK	1"-2"/CLEAR				✓6.3	K7e-M4e			24				
	R HYA	13h28.6m	-23°11'		8:12 12:38	9:01 13:27	40m/49m	✓ sl wk	1"/CLEAR				✓6.3	M6e-M8e(S)			26				
	θ APS	14h03.5m	-76°42'		9:05 13:31	9:29 13:55	21m/24m	WEAK + STREAKY					✓5.8	M6 III			28				T=12°C H=52%
2202	LS 640	7 39.1	[illegible]	FEB [illegible]	[illegible]	[illegible]	100/[illegible]	[illegible]	[illegible]	[illegible]	100/[illegible]	[illegible]	7.7				-5	[illegible]	[illegible]	[illegible]	[illegible]
	LS 581	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					11.8				3			[illegible]	
	LS 675	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]				-1			[illegible]	
	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~																		
[illegible]	[illegible]	11 [illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	-5 [illegible]			[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]			[illegible]				
	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]			[illegible]				
	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]					[illegible]				[illegible]				
	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	-			[illegible]				[illegible]
2204	LS 644	7 [illegible]	[illegible]	FEB 14-15	00:45	02:30	105m	0.23E	1-2"/[illegible]	[illegible]	100/0.8	120/20	12.2				-5			PB	T=13, H=47
	LS 614	7 38.1	-33 24	"	02:49	05:30	171m	2:45W	"	"	"	"	12.6				-3			PB	
	LS 847	7 52.8	-28 41	"	05:56	06:30	41m	3:41W	"				11.2				-1			PB	
	LS 8[illegible]	7 51.3	-22 36	"	06:42	07:45	45m/58m		"				11.3				+1				
2205	K 41	11 05.5	-58 53		08:11	08:15	4m	2.10					8.7	-			-5			W12	
	K 52				08:20	08:[illegible]	170s/[illegible]m	2:20					8.3	-			-3.2				
	K 69				08:32	[illegible]	8m	2.40					9.3	A			-1				
	K 76				08:49	08:59	10m	2.55					9.6	4-			+1				
	K 63				09:07	09:16	3.5m	3:10					8.3	A0	NoA	1s	+3, +4				T=12 H=38

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2206	LS 685	7 44 [illegible]	-2[illegible]	FEB 15/16	[illegible]31.30	[illegible]:11	160	[illegible]	1	3.36	100μ/.03mm	120/7.0	12.0					IIa-O	H-S	[illegible]	T = 15 H [illegible]
	LS 554	7 50 [illegible]	-25 35 50	"	03:[illegible]	[illegible]	5[illegible]	2:[illegible]	1.2"	"	"	"	11.9							[illegible]	[illegible]
	LS 885	7 56 35	-28 34 42	"	05 30	06 50	80	3:56	"	"	"	"	11.9							[illegible]	
	LS 710	7 43 27	-26 40 57	"	06:53	07:33	34/47	4:57	"	"	"		11.0					"	"	[illegible]	
2207	K62	11 05.5	-58 33		08:06	08:14	2½,5m	2:10W	2-3"				8.2	A			-5,-4			WIZ	[illegible] N = C 35 [illegible]
	K82				08:22	8:32	3½,6m	2:30	3"				8.5	A0			-3,-1				
	K85				08:36	8:55	Very Weak 19	2:52	4-5"				9.7	-			+1				
	~~K-EG~~ IC1				09:0[illegible]½	9:13	10½	3:10	"				9.0	-			+3				T=11 H=6.5
2208	~~LS 777~~	~~7 46 09~~	~~-30 30 44~~	FEB 16/17	~~0:44~~		~~105/107~~		~~1M~~		"	"	~~12.2~~				~~-5~~			PIB	T=14 H=50 cloudy
	K103				07.57½	8:07½	10m										-4			WIZ	
2208	LS 777	7 46 09	-30 30 14	Feb 17/18	00:33:00	02:18 00	105m	0.19 00E	1"	3.36	100μ/.8 mm	120/7.0	12.2				-5			PDB	clear (T=14, H=50) bright moon
	LS 554	7 33 34	-34 01 30	"	04:00:00	05 30 00	90m	3:05W	<1"	"	"	"	11.8				-3			PJS	clear bright moon
	LS 548	7 33 09	-36 17 47	"	05:50:00	05 50 20	20s	3:25W	1"	"	"	"	6.0				-1			PJS	"
2209	K108	11 05.5	-58 33		06:48	07:01½	4½,8	1:05W	2"				8.8				+5,4			WIZ	some low cirrus plate went down on 6m offset
	K127	"	"		07:03½	07:21½	3½,6	1.25					3.6				2,1				
	K117				07:25	07:32½	7½	1:37					9.3	N≈A	1S		-1				
	K126				07:36½	07:52	15½	1:55					10.1				-3				
	K116				07:51⅓	08:01⅓	10	2.12					9.6				-5				
2210	K67				08:42	8:55½	13½	3:00					9.4				5				
	K80				8:58½	9:05¾	7¼	3:10					9.2				3				
	K75				9:09	9:19	10	3:25W					9.6	N≈A	1S		1				T=13 H=45
2211	K7	11 05.5	-58 33	FEB 18/19	0:4[illegible]	0:51	7	5:00E	1-2"	3.36	100/0.8	120/7.0	9.1				-5	IaO	M-S	WIZ	T=17 H=46 Full Moon
	K107				0:59⅓	1:13½	14	4:40E					9.9				-3				
	K[illegible]				1:18	1:25	7	4.30E					~~9.2~~	N≈A	1S		-1				
	K[illegible]				1:3[illegible]	1:45½	[illegible]	4:18E					[illegible]				+1				
	K190				1.39½	1:47	7½	4:05					9.2				-3				
	K146				1:55½	2.10	14½	3:33					10.0				-5				
2212	K188				2:32½	2:38	5½	3:15					9.0				-5				
	K202				2.44	2:52	8	3:05					9.4				-3				
	K211				2.56	3.05½	9½	2.50					9.6	N≈A	1S		-1				

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2212 (cont)	K235	11 05 5	-58 33	FEB 18/19	3:11	3:21½	10½	2:40E	1-2"/Clr	3.36	100μ/0.8	120/7.0	9.7				-1	IIaD	M-S	W,Z	NCC 3532
	K249	↓	↓		3:27	3:40	23	2:12					10.6				+3				
	K233				3:56	4:07	11	1:50					9.8				+5				
2213	K243				4:26	4:31½	5½	1:25E					9.2 ~~8.8~~				-5				
	K217				4:35½	4:47	11½	1:13					9.8 ~~9.2~~				-3				
	K220				4:50	4:56⅓	6⅓	1:00					8.2				-1				
	K231				5:02½	5:07	2,3	0:50					8.2				+1,+2	~~+1,+2~~			
	K215				5:12½	5:25½	13	0:30					10.0 ~~9.6~~		NeA	1s	+4				
	K222				5:29	5:38	9	0:16E					9.6				+6				
2214	K76				5:58½	6:04	5½	0:12W					9.0				-5				
	K123				6:11½	6:23½	12	0:30W					9.9				-3				
	K125				6:26	6:52	26	1:00W					10.7		NeA	1s	-1				
	K164				6:57	7:05¾	8¾	1:13					9.5				+1				
	K185				7:10½	7:22	11½	1:28					9.8				+3				
	K175				7:27½	7:38½	11	1:45					9.8				+5				
2215	K154				7:56½	8:02½	6	2:10					9.2				-5				
	K148				8:08½	8:20	11½	2:28					9.8				-3				
	K163				8:23½	8:27	1½,2	2:35					7.8				-1,0				
	K189				8:34	8:37	3	2:45					8.4		NeA	1s	+2 ~~+3~~				
	K184				8:40½	8:51½	11	3:00					9.8				+4				
	K150				8:56½	9:04	7½	3:12					9.4				+6				T=15 H=56
2216	K206			FEB 19/20	0:43½	0:58	14½	4:50E					9.9				-5				T=17 H=57
	K169				1:04½	1:34	29½	4:15E					10.7				-3				
	K159				1:37½	1:59	21½	3:50E ~~4:4~~					10.4		NeA	1s	-1				
	K160				2:00½	2:31½	31	~~3:28~~ ~~4:27~~ 3:18					10.8				+1				
	K132				2:35	2:38½	3½	3:12E					8.6				+3				
	K119				2:42½	3:03½	21 ~~3½~~	2:45 ~~3:12E~~					10.5				+5				
2217	K103				3:22	3:34½	12½	2:15E					9.9				-5				
	K85				3:39	3:50 ~~44½~~	11	2:00					9.7				-3				
	K86				3:54	4:03	9	1:45					9.6		NeA	1s	-1				

NUMBER	OBJECT	R A	DEC	DATE U.T 1981	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H A END	SEE. / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	~~CALIB~~ POSN	EMUL	DEV	OBS	REMARKS
2217 (cont)	K88	11 05 5	-58 33	FEB 19/20	4:06½	4:37½	31m	1:10E	1-2"/clr	3 36	100/0.8	120/70	10.9				+1	IIaD	M-S	W1Z	NGC 3532
	K81	↓	↓		4:38½	5:03	24½	0:45E					10.7				+3				
	K54				5:05	5:33½	28½	0:15E					10.83				+5				
2218	K113				5:53	6.11	18	0:25W					10.4				-5				Images on this plate are out of focus ↓
	K93				6:15	6:43½	28½	0:50W					10.8				-3				
	K78				6.45½	7:16½	31	1:35W					10.9		NeA	1s	-1				
	K26				7:21	7:41	20	1:55					10.4				+1				
	K10				7:43	8:14	31	2:30					10.9				+3				
	K21				8:18	9.04	48	3:18					11.3				+5				
	K13				9:08	9:11	3	3:25W					8.4				+6				T=15 H=60
2219	K22	11 05.5	-58 33	FEB 20/21	0:25	0:44	19	5:00E					10.2				-5			W1Z	T=15 H=64
	K40				0:47½	1:13½	26	4:30E					10.6				-3				
	K47				1:15½	1:33½	17½	4:10					10.2		NeA	1s	-1				
	K89				1:36	1:58	22	3:47					10.4				+1				
	K251				2:05	2:34½	29½	3:10					10.8				+3				
	K226				2:41½	3:04	22½	2:45					10.5				+6				
2220	K223				3:22	3:40	18	2:10					10.3				-5				
	K239				3:43½	4.10	26½	1:35					10.7				-3				
	K242				4:11½	4:25½	14	1:20					10.1		NeA	1s	-1				
	K234				4:27½	4:41	23½	1:05					10.0				+1				
	K255				4:45	5:11	26	0:35					10.7				+3				
	K219				5:14½	5:36½	22	0:10E					10.5				+5				
2221	K158				5:54	6:10	16	0.25W					10.2				-5				
	K136				6:11½	6:32	20½	0:50W					10.5				-3				
	K110				6:35	6:50½	15½	1:10					10.2		NeA	1s	-1				
	K91				6:55	7:38	43	1:55					11.3				+1				
	K55				7:40½	8:25½	45	2:45					11.3				+3				
	K50				8:28	9.01	33	3:20					10.9				+5				
	K34				9.03½	9.20	16½	3.40					10.2				+6				T=15 H=62

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB POSN	EMUL	DEV	OBS	REMARKS
2222	K72	11 05.5	-58 33	FEB 21/22	CC:25	CC:54	34m	4:45E	2" /Clr	3.36	100 /10.8	120 /7.0	10.8				-5	IIaD	M-5	W12	T=15 H=70 NGC 3533
	K102				C1.C1½	C2:34½	90m	~~4~~3:10					11.9				-3				
	K121				2:36	3:21	45	2:20					11.3				-1				
	K~~E~~115				2:22½	2:28¾	6¼	2:~~1~~3					9.1				+1				
	K97				3:34	4:~~54~~ 45	71	0:55E					11.8				+3				
	K94				4:47	5:09	22	0:32E					10.6				+5				
2223	K42				5:27½	5:~~5~~0½	23	0:10W	3"				10.~~7~~				-5				
	K28				5:56	6:26~~7~~	31	0:45	2-3				10.8				-3				
	K~~E~~138				6:30½	6:56½	26	1:15					10.7				-1				
	K139				6:58	~~6:20~~ 7:20	22	1:40					10.5				+1				
	K155				7:23½	7:50½	27	2:10	2"				10.7				+3				
	K140				7:54	8:47	54	3:10					11.5				+5				
	K182				8:52	9:18	26	3:14W					10.7				+6				T=15 H=70
2224	K174			FEB 22/23	0:35	0:4C	1½,1½	4:57E	1-3"/clouds				7.4				-5.4			W12	T=16 H=64 Scattered clouds
	K193				0:~~5~~58	1:17	~16	4:20E					9.7				-~~3~~-1				
	K157				1:26	1:32½	6½	4.05					8.9				+1				
	K207				1:40	1.57	17	3:40					10.0				+3				Clouds
	K214				2:55	3:25	30	2:15E	1-2"/Clr				10.8		NeA	1S	+5				
2225	K212				3:39½	4:26½	47	1.10E	1-2"/Clr				11.3				-5				
	K201				4:29½	5:06½	37	0:30E					11.1				-3				
	K192				5:09	5:30	21	0:09E					10.5				-1				
	K131				5:33½	E:18½	45	0:42W	E"				11.3				+1				
	K122				6:22	6:28	6	0:50					9.1				+3				
	K124				6:32½	6:34¾	7¼	1:03W	2-3"				~~10.5~~ 8.3				+5				
2226	K83				7:01	8:03	62	2:30	3"				11.6				-5				
	K61				8:13½	8:23½	10	2:48	3-4-2"				8.6				-3				
	K44				8:27½	8:39½	12	3:05	2"				9.8				-1				
	K43				8:42½	8:46½	4	3:12					8.6				+1				
	K24				8:52½	9:06½	14	3:32					10.0				+3				
	K23				9:07½	9:17½	10	4.43W					9.6				+5				T=15 H=58

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV.	OBS.	REMARKS
2227	ζ LEP	6 05.0	-24 12	24 FEB 1981	0023	0202	99m / 120	1h30mW	2" clear	2.85	50μ/C.8	w 5.05	8.5	M6III std	NeA	60s	30m	IIa-O	M-5		H 72% T 14°C W S
	R HOR	02 53.4	-49 58	1981	0207	0217	75m / 40	5h54mW	2" "				7.5	MSe			30V		6" 15 min		CROWE PROGRAM
	S CAR	10 09.3	-61 29		0321	0413	52m / 1+10K	0h24mE	2" "				7.4	K7e			(ox!)				
	V CEN	14 31.6	-56 51		0422	0452	30m /	4h7mE	" "				7.4	GOIV							Gu program
	R HYA	13 28.6	-23 11		0503	0548	45m /	2h8mE	1.5 "				7.7	M6e							CROWE PROG
	V Y LEO	10 55.1	+06 18		0552	0622	30m /	1h W	1.5 "				7.5	MS.5 III std.							"
	HR3750	09 27.1	-06 00		0639	0649	63m / 9	2h56mW	" "				6.0	G2V							Sol. prog
	HR 4328	11 07.3	-30 05		0656	0709	13m / 16	1h34mW	" "				7.1	G2V							"
	HR 4523	11 45.9	-40 23		0711	0715	3m / 4.5	1h W	" "				5.6	G5V							"
	HR 4903	12 54.3	-44 01		0717	0725	8m / 12	5m W	" "				6.5	G2V							"
	EV VIR	14 12.3	-13 48		0737	0907	90m /	30m W	" "				8.7	M4 std							
2228	R HOR	02 53.5	-49 59	25 FEB 1981	0023	0103	40m / K	3h45mW	2" hazy	"	"	"	7.2	MSe	"	"	30m	"	"		T 15°C W S H 70%
	"	"	"		0104	0122	18m / 8	4h5mW	1.5 "				"	"			14V				
	ζ LEP	06 05.1	-24 14		0127	0340	2h12m /	3h12mW	1" "				8.7	M6III std.							
	R CRU	12 23.1	-61 33		0354	0435	40m / 80	2h12mE	1.5 "				8.0	GIV							CROWE prog
	S CAR	10 09.2	-61 29		0438	0611	93m /	1 38W	" "				7.4	K7e							CROWE prog.
	ER CAR	11 09.4	-58 47		0614	0637	23m / 40	1h4mW	2" "				7.6	GIV							CROWE prog.
	HR3750	9 26.9	-6 00		0639	0654	10.5m / 10	3h3mW	2" "				6.0	G2V							Solar prog.
	HR4523	11 45.7	-40 24		0656	0702	5m / 7	54m W	2" "				5.6	G5V							
	HR4328	11 07.1	-30 07		0706	0725	18m / 40	1h55mW	" "				7.1	G2							
	HR4903	12 54.1	-44 03		0728	0737	9m / 12	20mW	1.5 "				6.5	G2							
	HR5384	14 22.2	+01 19		0739	0752	12m /	55mE	" "				6.9	G3							
	HR5699	15 20.8	-48 15		0755	0803	8m / 10	1h41mE	" "				6.3	G2							
	RS Sco	16 54.6	-45 05		0806	0951	1h45m /	1h28mE	1" "				7.8:	MSe							
2229	HR1157A	03 43.8	-40 41	25/26 FEB 1981	0035	0052	5m / 11	2 50mW	2" cloudy				7.6	MO	"	30s	30m 18V	IIa O Baked 650 3m vac. + Formigun strength			cloudy and T 15°C 68% No Wind
	2 HR2497A	06 44.8	-30 34		0102	0127	14m /	24mW	2" cloudy	"	50μ/1.2	"	6.45	B8							
	HR2501A	06 45.1	-30 56		0134	0137	3m /						5.72	B3							
	" B	"	"		0139	0233	56m / 80	1h28mW	1.5 Cirrus				8.24	B							
	HR2736	07 09.5	-70 25		0239		2m / 3						7.82	G8							
	HR2735					0250	6m / 8m	1h25mW	" "				6.09	F4							

NUMBER	OBJECT	R.A. 1981	DEC	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2230	ER Car	10 09.1	-58 44	FEB 25/26	03:19	0348	29m 46m	1h 41m E	2" cirrus	2 85	50µ / 58	6.7/5.05	7.2	G Ieq	NaA	60s	3mm 18V.	IIa-O	III-S 6.7m 15m	~1	
	VY LEO	10 54.8	+06 19		0358	0448	50m	0 22 E	1.5" cirrus				7.5	M5							
	R CRU	12 23.1	-61 31		0459	0619	80m 90m	22 E	1"				7.8	G Ieq							
	HR4328	11 07.0	-30 04		0628	0737	60m 70m	2h 11m W	1" cirrus		1.2		7.1	G2							
	HR4523	11 45.8	-40 22		0739	0750	10m	1 45W	1.5"		1.2		5.6	G5							
	HR4963	12 54.0	-44 42		0753	0814	20m 25m	1h W					6.5	G2							
	HR5699	15 20.6	-48 14		0816	0831	15m 35m	1h 48m E					6.3	G2							
	HR5911	15 52.1	+13 14		0834	0903	29m 30m	1h 8m E					6.7	G2							
	HR6060	16 14.3	-08 20		0906	0923	17m	1 10 E					6.15	G1							
2231	CALLISTO	12 35.5	-62 02	26/27 FEB 1981	0533	0615	42m	35m E	1.5" cirrus		1.2		6.3	G2	"	"	30mm 15V	"	"	"	
2232	V CEN	14 31.2	-56 48	27/28 FEB	0623 0558	0953	1h 28m Folarby	1h 9m W	1.5" cirrus		1.8		8.2	G I			30mm 16V			5 ~2	17°, 65% Cloud
2233	HR1157A	03 43.4	-40 41	28/1 Mar	0009	0035	25m	2h 43m W	1.5" cirrus		1.2		7.61	K0						0	18°, 55% Humid
	HR1168A	03 44.4	-54 20		0038	0048	10m 20	257W					6.52	K0				Initial 3" 25° Vacuum stand = fuzzy pix			
	HR1190	03 48.1	-37 4L		0053		1.5mm						4.7	B8							
	1189	"	"			0101	3mm 4mm	3h 4m W	1"				5.4	A0							
	1359A	04 18.5	-33 58		0104	0113	8m	247W					6.59	A2							
	1372A	04 17.7	-63 16		0118	0123	4m 3	258W					5.52	B4							
	1405A?	04 24.2	-57 07		0126	0151	24m						3.47	G0							Pattern of faint
	1405B?	04 24.1	-57 07		0152	0228	36m	3 56W	1.5" clear				7.97	?G5							
	1506A?	04 42.6	-08 51		0240	0321	40m	4h 31m W	1"				7.61	G8III							
	(2) 1563A	04 50.6	-53 30		0334	0353	5m 3mm	4h 36m W					6.1	F0							
2234	(2) V CEN	14 31.6	-56 48	"	0345	0450	25m 40m	3 49E	2" clear		0.8		7.7	G I eq				II-O			
	HD91824	10 34.5	-58 04		0457	0557	60m 80	1h 14m W			1.2		8.17	O7							
	91943	10 35.4	-58 06		0558	0617	18m	1h 34m W					6.8	BOI							
	91969	10 35.5	-58 06		0619	0635	15	1h 55m W					6.5	BOI							
	92007	10 35.6	-58 07		0637	0737	60m	2h 5m W					8.3	BOIII							
	91983	10 35.7	-58 08		0740	0905	1h 25m	4 25m W					8.0	B1III							
	-57°3506A	10 35	-58 08		0905	0945	40m 50	5h 3m W					7.68	B1II							17°, 34% Humid

#22 in NGC 3293

Sp. eyepiece ↓ N → E

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2235	HR 1168A	03 44.3	-54 21	1/2 MAR 1981	0033	0101	28m / 40	3/12W	2" / clear	2.85	50µ / 1.2	67 / 5.05	7.4	K0	NeA	30s	30m 14V	Baked IIa-O 3h 65°C + N2 dew	M-5 15m 67°F		17°62°15 wind
	HR 1372	B 04 12.5	-63 18		0103	0140	37m / V	3/17W					7.9	A							
	HR 1652A	05 03.8	-35 30		0143	0152	8m / V	2 44W	"				5.8	K3							
	HR 2158A	06 04.1	-45 05		0157	0204	6m / 7	1h 56m W	"				6.45	F5							
	HR 2157(c)	06 04.1	-45 00		0205	0215	10m / 12	206W					6.84	F5							
	HR 2412A	06 32.2	-58 44		0223	0228	34m / 6	152W					5.66	B9							
	HR 2462A	06 38.3	-48 11		0231	0239	8m / V	158W					6.	G8							
	HR " B	06 38.3	-48 11		0239	0322	43m / V	240W					8.3	A0							
	HR 2501B	06 44.9	-30 56		0325	0422	57m / 70	333W					5.2	B							
2236	S CRU	12 53.7	-58 20	"	0432	0515	43m / 60	1h 43 E	"	"	50µ / 1.8	"	7.7	G I	NeA	60s	30m 15V	I a O	M-5		
	HD 92044	10 36.0	-58 12		0523	0656	93m / 120	217W	"	"	50 / 1.2		8.4	B0.5I							20°42°5 Mag.
	-57°3523	10 35.8	-58 08		0658	0802	64m / 90	324W					8.04	B1 III							NGC 3293 - #20
	-57°3521	10 35.7	-58 08		0804	0934	90m / 120	454W					8.21	B1 III							#2
2237	HR 1168A	03 44.2	-54 19	2/3 MAR 1981	0005	0049	44 / V	307W	2" / clear	"	"	"	7.4	K0	"	30s		Baked IIa-O	M-5		
	HR 1504 E?	04 40.3	-58°5.5'		0104	0135	30m / 45						7.9	G5				(white stain at top of grating)		(grease)	Trailed in Dec
	HR 1504 W?	"	"		0135	0215	40m / 60	336W	2" / clear				8.05	G5i				"	"	bottom	" "
	HR 2162 E	06 04.5	-48 24		0232	0312	40m / 60		"				8.38	G5							(D) poste
	" W	"	"		0312	0404	42m / 60	4h W	"				7.92	G5							
	S CRU	12 53.6	-58 19		0409	0422	12m / 18		1.5" / clear		50µ / .8		7.4	G I cap							
2238	"	"	"	"	0431	0522	49 20 / 29	1h 34W	1" / clear	"	"	"	"	"	"	60s	"	II a O	M-5		
	T CRU	12 20.7	-62 08		0525	0606	40m / V	15m E	1" / clear				7.8	G I cap							18° 48°: No Wind
	R CAR	09 32.3	-62 39		0623	0753	90m / 45	4 21 W	1.5 / clear	336	100µ / .8	120 / 7.0	8.6	me	"	10s	"	II a-O	"	"	(zoned potential shell)
	S CAR	10 09.1	-61 25		0755	0829	21m 12 / V	4 21W	"				7.4	me							
	R HYA	13 28.7	-23 08		0833	0850	16m / 12	1h 22W	"				7.4	me							
	RS Sco	16 54.5	-45 01		0857	0924	27m / 20	1h 30E	"				7.9	me							
	R X Boo	14 23.1	+25 50		0928	0959	31m / 45	1h 37m W					8.5:	me							
2239	R HOR	02 53.2	-49 57	3/4	0020	0040	12b / 3	350W	1" / clear	"	"	"	6.7:	me	"	"	"	"	MWP2 7m 67°F		18° 41°: Ound
	S Pic	05 10.5	-48 31	MAR 1981	0044	0144	60m / V	237W	"	"	"	"	9	me							
	T COL	05 18.6	-33 44		0147	0247	60m / 30						9	me							

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2240	S CRU[2]	12 53 6	-58 19	3/4	0301	0338	24,32 / 36	3h 11m E	1" / clear	2.85	50µ / 0.8	69 / 5.0	7.1	GI cap	NeA	60s	3h 15m	Ia-O	M-5	N/A	
	R CRU	12 23.0	-61 31	Mar 1981	0340	0458	48,26 / 1	1h 20m E	1" / clear				7.8	GI cap							
2241	R CAR	09 32.4	-62 40	"	0548	0630	42 / strong fringe!			2.85	150µ / 1.8	120 / 7.0	9.5	Me	NeA	10s	"	"	M-P 2	"	
	"	"	"	"	0635	0722	47 / 40	3 52 W	2" / clear	3.36	"	"	1	"							
	S CAR	10 08.7	-61 27		0724	0746	5 8 / 1	3 43 W	3" / clear				7.4	Me (Ce)							
	R HYA	13 28.5	-23 10		0750	0800	10m / 7m	33m W	2" / clear				7.7	Me							
	W HYA	13 47.8	-28 15		0802	0858	56m / 1m	1h 15m W	"				10.3	Me							
	T NOR	15 42.9	-54 56		0901	1000	59m / 1m	21m W	"				10:	Me							
2242	O CET	02 18.2	-03 03	4/5	0005	0110	6m / 4m	5m W	2" / clear	"	"	"	9.0	Me	"	"	"	"	"	"	
	R HOR	02 53.6	-49 57	Mar 1981	0114	0118	4m / 3m	4 30 W	"				6:	Me							
	T COL	05 18.5	-33 44		0122	0153	30m / 25m	2 43 W	"				9.	Me							
	HD45346	06 24.2	-43 21		0158	0232	34m / 40	2 15 W	"				9.2	G5 Cp							
2243	ER CAR	11 09 3	-58 44	"	0246	0446	60m / 50	43m E	"	2.85	50µ / 1.8	69 / 5.0	7.6	GI cap	"	60s	"	"	M-5	"	M-P 35mm Simple NE
2244	R HYA	13 28.6	-23 09	"	0430	0441	7m / 4m	2 40 E	"	3.36	100µ / 1.8	124 / 7.0	7.2	Me	"	10s	"	"	M-P 2	"	
	W HYA	13 47.9	-28 16		0444	1644	2m / 1m	56m E	"				10.5	Me							
	T NOR	15 42.9	-54 56		0648	0821	93m / 1m	1h 13m E	"				10.	Me							
	RX Boo	14 23.2	+25 49		0825	0911	46 / 1m	56m W	"				9.5	Me							
	RS Sco	16 54.5	-45 01		0915	0945	18,12 / 1m	1h E	"				7.5	Me							
2245	C CET	2 18.3	-3 04	5/6 Mar	2358	0031	7m /	4 26 W	1.5" / clear	3.36	100µ / 1.8	120 / 7.0	9.0				POSN +5	IIaO	M-5	G/F	Note H=34 C+W Mira Program Sch publication Used instead of H mag. 14 mg!
	R HOR	2 53.2	-49 58		0046	0052	8,8,4,3 /	4 05 W	"				6.7		NeA	1s	+32,1				
	R CAE	4 39.8	-38 16		0057	0108	11m /	2 40 W					9.8				-1				
	S PIC	5 10.5	-48 32		0116	0225	50,100,150s /	2 25 W					7.4				-3.5,-6				
2246	T COL	5 18.6	-33 44		0145	1 53	1s, 2s, 3s, 5m /	2 45 W					8.2				+5,4,3				
	RV PUP	6 41.4	-42 21		0206	2 45	15m, 20m /	2 15 W					8.0				+1,-1				
	AS PUP	8 09.0	-38 07		0253	3 11	25,40m /	1 15 W					9				-3,-4,-4				
2247	R CAR	9 31.7	-62 42		3 35½	3 44	8m /	0 23 W					8				+5				
	S PIC	5 10.5	-48 32		3 55	4 03	8m /	5 05 W					7.4				+3				
	T COL	5 18.6	-33 44		4 08	4 21	13m /	5 10 W					8.2				+1				
	AS PUP	8 09.0	-38 07		4 27	4 44	22m /	2 52 W					9				-1				
	W VEL / S CAR	10 14.5	-54 23		6 06	6 07	61m /	2 05 W					9.4				-3				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. (1981)	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	~~CALIB.~~ POSN	EMUL	DEV	OBS	REMARKS
2247	S CAR	10 08.7	-61 27	MAR 05/06	6 25	6 28	1,2m /	2:30W	2"/clr	336	100/0.8	120/20	5.7				-5,-6	IIaD	M-S	WIZ	C.W. MIRAS
2248 (cont)	V ANT	10 20.3	-34 42		6 52½	7 28	25,10m /	3:20W					~9				+5,4				
	XZ CEN	12 23.2	-35 31		7 42	8 38	56m /	2:27W					~10				+3				
	T NOR	15 42.6	-54 56		8 53	9 07	14m /	0:25E					8.5		N.A	15	+1				
	RS SCO	16 54.2	-45 04		9 16	9 23	1,2,4m /	1:20E					6.4				-1,-2,-3				
	W PAV	17 48.6	-62 24		9 34	9 52	18m /	1:45E					9.2				-5				T=15 H=40%
2249	K173	11 05.5	-58 33	MAR 06/07	4 48	5 58	70m	1:05W	1.2"/clr	336	100/0.8	120/20	11.8				+5	IIaD	M-S	WIZ	T=17 H=36 NGC3532
	K197	↓	↓		6 04	7 20	76m	2:30W					11.9		N.A	15	+3				
	K204				7 30	8 30	60m	3:40W					11.6				-6				
	K145				8 38½	9 30	52m	4.40W					11.4				-9.2				T=15 H=34
2250	K20	11 05.5	-58 33	MAR 07/08	6 21½	1 41½	80m	3:05E	1.2"/clr	336	100/0.8	120/7.0	11.9				+5	IIaD	MS	WIZ	T=16 H=38
	K39	↓	↓		1 45½	2 54½	69m	1:50E					11.8				+3				
	K77				2 57½	3 56½	59m	0:50E					11.6		N.A	15	+1				
	K95				3 59½	4 08	8½m	0:38E					9.6				-1				
	K112				4 10½	5 07½	57m	0:26W					11.6				-3				
	K183				~~5 16½~~	5 28½	18m	0:42W					10.4				-5				
2251	K118				5 44	6 34	50m	1:50W					10.4				+5				
	K151				6 39	7 52	73m	3:05W					11.8				+3				
	K171				7 57	~~8~~ 9 18	81m	4:35W					11.9		N.A	15	+1				OUT OF FOCUS
	K172				9 20½	9 25	4½m	4:40					8.7				-1				
	K141				9 28½	9 32½	4m	4:47					8.5				-3				
	K98				9 35	9 41	6m	4:55W					8.9				-5				T=16 H=26
2252	K252			MAR 08/09	0 18	1 08	50m	3:35E	2"/clr				11.3				+5			GIZ	T=17 H=38
	K221				1 11½	1 16½	5m	3:25E					8.9				+3				
	K237				1 20	2 20	60m	2:25E					11.6		N.A	15	+1				
	K238				2 23	2 38	15	2:10E					10.1				-1				
	K172				2 42	2 46	4	2.00E					8.7				-3				
	K171				2 48½	4 04½	76	0:40E					11.9				-5				
2253	K167				4 23½	5 16½	53	0:35W					11.5				+5				
	K151				5 20	6 35	15	1:55W					11.8				+3				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 326

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB POSN	EMUL	DEV	OBS	REMARKS
(CONT)				MAR																	
2253	K113	11 05.5	-9 8 7 3	08/09	6 37	7 11	44m	2 30W	2" /CLR	3.36	100/0.8	120/7.0	11.0		NeA	1s	+1	IIaD	MS	WIZ	
	K93	↓	↓		7 12½	7 42½	30m	3:00W					10.8				-1				
	K78				7 43½	8 06½	23	3:28W					10.9				-3				
	K26 NGC 6730				8 08	8 29	21	3:50W					10.4				-5				
2254	1982c?	18 18.4	-24 44		9 14	9 46	32	2:10E			0.6		-				+5				T=15 CH=38?
2255	K13	11 05.5	-5 8 3 3	MAR 09/10	0 15	0 18½	3½m	4:20E	1.2 /CLR	3.36	100/0.8	120/7.0	8.4				+5	IIaD	MS	WIZ	T=15 H=42
	K10	↓	↓		0 21½	0 55½	34	3:45E					10.9				+3				
	K21				0 01	1 48	47	2:50E					11.3				+1				
	K9				1 51	1 57½	6½	2:40E					9.2				-1				
	K65				2 00½	2 03½	3	2:35E					8.3				-3				
	K66				2 04½	2 12½	8	2:25E					9.4				-5				
~~2256~~	K79				2 15	2 39	24	2:00E					10.6				-6				
2256	K98				2 55	3 00	5	1:40E					8.9				+5				
	K141				3 06	3 09½	3½	1:35					8.5				+3				
	K135				3 12½	3 15½	3	1:30					8.4		NeA	1s	+1				
	K194				3 17½	3 20	2½	1:20E					8.3				-1				
	HD58134	7 22.3	-29 43		3 36½	3 41½	5m	2:45W					8.9				-3				
2257	K14	11 05.5	-5 8 3 3		4 38	4 48½	10½	0:12W	1.2 /CLR	3.36	100/0.8	120/7.0	8.0				6	IIaC	MW IZ		
	K29	↓	↓		4 49½	5 02½	13	0:25W					8.2				~~8~~ 7				
	K41				5 ~~17~~ 07½	5 35½	23½	0:55W					8.7				11				
	K52				5 36½	5 ~~50~~ 47½	13½	1:15W					8.3				13				
	K63				5 53	6 07	14	1:30W					8.3				15				
	K62				6 09	6 21½	12½	1:45					8.2				17				
	K82				6 2~~6~~½	6 43½	17	2:05					8.5				19				
	K101				6 46	7 13	27	2:35					9.0				21				
	K108				7 15½	7 37½	22	3:00					8.8		NeA	10s	23				
2258	K127				7 48½	8 11½	23	3:35					8.6		NeA	10s	8				
	K154				8 15	8 48	33	4:10					9.2				10				
	K163				8 49	8 58½	9½	4:20					7.8				12				
	K149				9 01	9 17½	16½	4:40					8.4				14				T=13 H=41
	K231				9 22½	9 38½	16½	4:50					8.2		NeA	10s	16				

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 327
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1931	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2259	K14	11 05 5	-58 33	MAR	0 16	0 54	38m	3 40E	1-2"/Clr	2.85	50/0.8	67/5.05	8.0		NeA	60s	30m at 14V.	IIaO	MS	W1Z	T=15C H=44% NGC 3532
	K29	↓			0 56	1 41	45	2 55E					8.2								
	K41				1 43	3 03	80	1 30E					8.7								
	K52				3 04	3 49	45	0 45E					8.3								
	K63				3 51½	4 36½	45	0 05W					8.3								
	K62				4 37½	5 19½	42	0 45W					8.2								
	K82				5 21	6 13	52	1 40W	1"				8.5								
	K127				6 14	7 24	70	2 50W					8.6								
	K163				7 25½	7 55½	30	3 25W					7.8								
	K189				7 56½	8 46½	50	4 15W					8.4								
	K231				8 48½	9 36½	48	5 05W					8.2		NeA	60s					T=15 H=37
2260	K188			MAR 11/12	0 13½	0 42½	29	3 45E	1-2"/clr	3.36	100/0.8	120/7.0	9.0		NeA	10s		IIaO	MWR2	W1Z	T=15 H=42
	K202				0 44½	1 25½	41	3 05					9.4		~~NeA~~	~~10s~~					
	K211				1 26½	2 14½	48	2 15					9.6								
	K190				2 15½	2 48½	33	1 40					9.2								
	K152				2 49½	3 14½	25	1 15					9.0								
	K114				3 16	3 47	31	0 40					9.2								
	K132				3 48½	4 06½	18	0 25E					8.6								
	K150				4 08	4 44	36	0 15W					9.4								
	K116				4 46	5 32	46	1 05W					9.6								
	K117				5 33½	6 08½	35	1 40					9.3		NeA	60s ×					
2261	K86				6 26	7 11	45	2 40					9.6		NeA	60s ×					
	K70				7 14	8 02	48	3 30					9.6								
	K69				8 02½	8 41½	39	4 10					9.3								
	K8				8 45	9 30	45	5 00W					9.4		NeA	10s					T=14 H=37
2262	K7			MAR 12/13	5 33	6 01	28	1 35W	1-2"/clr				9.1		NeA	10s				W1Z	T=12 H=45
	K80				6 06	6 39	33	2 15W					9.2								
	K75				6 40½	7 26½	46	3 0[illegible]					9.6								
	K76				7 ~~25~~ 30	7 59	29	3 35					9.0								cloud moved in at dawn.
	K ~~169~~ 243				8 05	8 36	31	4 10					9.1								T=11 H=50
	K233				8 37	9 40	63	5 15W	2-3"				9.8		NeA	10s					

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	NGC 3532																				
2263	K25	11 05.5	-58 33	APR 08/09	01 31	01 53 01 57	10,4"/	C 45E C 56E	? Clouds Across	3.36	100 / 0.8	120 / 2.0	8.5				+5,4	IIaD	M-S	W12	T=15C H=32% W=15 Cirrus + Clouds
	K56				01 59	02 10	11"/	03CE					9.6		NeA	1S	+2				
	K165				02 21	03 01	40"/	C 20W					9.8				-1				
	K Hyd	9 37.4	-14 15		03 16	03 22	12,15,30"/	21CW					4.9	K5 II			-3,-5,-6				
2264	ζ Leo	10 06.3	+16 51		03 45	03 50	2,4,8"/	20CW					3.5	A6 Ib	NeA	1S	-5,-4,-3,-1				Middle Exposure Missing 2 Trails Overlapped
	ζ Lee	10 15.7	+23 31		03 56	04 01	4,8,16"/	21CW					3.7	F6 III			-1,-2,-3,-6				
2265	K5	11 05.5	-58 33		04 28	04 44	8,16"/	2C5W	3.5"/CLR				8.7				+5,4				Some Cirrus Clouds
	K6C				04 49	05 03	2½,4,6"/	225W					7.4		NeA	1S	+2,+1				
	K12C				05 10	05 28	5,5½,8"/	25CW					8.3				-3,-4,-6				
2266	K111				05 45	06 05½	8,12½"/	325W	3.4"				9.1				+5,+4				
	K109				06 14	06 32	10,7"/	355W					8.9		NeA	1S	+2,1				
	K142				06 38	06 51	3,4,6"/	410W					8.1				-1,-2,-3				
	K143				06 58	07 16	16,8,4"/	435W					8.9				-5,-6				
2267	K17C				07 42½	07 57	4,5½/	517W					8.7		NeA	1S	+5,4				
	K209				8 03	8 14	6½,4/	535W					8.4		NeA	1S	+2,+1				
	K229				8 23½	8 41	10,6"/	6CCW					8.8				-1,-2				
	22 Sco													B2 II							
	β Her	16 29.1	-25 05		8 53	8 56	12,6,4"/	C 50W					4.7	G8 III			-4,-5,-6				
2268	β Her	16 29.4	+21 31		9 16	9 17	4,2,8"/	115W					3.8	G8 III	NeA	1S	+5,+3				
	β Oph	17 42.5	+4 34		9 27	9 28	2,4,8"/	010W					3.9	K2 III			+3,+1,+6				T=15 H=27 W=10
2269	K25	11 05.5	-58 33	APR 09/10	4 37	4 51½	3½,4½,6"/	215W	3"/Some Cirrus				8.5				+5,+4,3			W12	T=12 H=36
	K56				4 55	5 07	12"/	230W					9.6				+1				
	K165				5 14½	5 24½	15"/	255W					9.8				-1				
	K23C				5 36	5 44	5,3½"/	310W	2"/Clr				8.5				-3,-4				
2270	K248				6 03½	6 11½	2,2½"/	335W					8.0				+5,+3				
	K254				6 17	6 27	4½,6"/	350W					8.7				+1,-1				
	K11				6 35	6 47½	14½"/	415W					10.0				-3				
	K186				6 54½	7 15½	21"/	435W	2.3"				10.2				-5				
	K181				7 16½	7 37½	21"/	5CCW					10.2				-6				
2271	K227				7 54½	8 12½	18"/	535W					10.0				+5				
	β Her				8 28	8 31	2,4,7"/	03CW					3.8	G8 III			+3,+1				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE UT 1981 APR	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CAMP	EMUL	DEV	OBS	REMARKS
(cont) 2271	β Oph	17 42·5	4 34	09/10	8 39	8 41	2,4,2B/	0 30E	2" /Clr	3·36	100µ/1.3mm	120/7.0	2.9 ✓	K2III	Ne A	1	~~7456~~	IIaD	MS	WIZ	
2272	67 Oph	17 59·7	2 56		8 58	9 00	24,4/	0 20E					4·0 ✓	B5Ib			5443				
	HR7475	19 38·6	16 32		9 16	9 19	3C445,60B/	1 50E					6·4 ✓	K4Ib	NeA	1³	1, 1·2				
	ν Cyg NGC 6932	19 55·7	35 02		9 26	9 28	4,6,5B/	2 00E					3·9 ✓	K0III			4, 5·6				T=11C H=30%
2273	K13	11 05·5	-58 33	AIR 12/13	C 00	C 16	16m/	2 03E	3" Focus	3·36	100 µm	120/7.0	5·4		NeA	10³	8	IIaO	MK'PZ	WIZ	T=16 H=31
	K43				0 19½	0 45	25½/	1 4CE					8·6				10				
	K164				0 49	1 35	46/	0 5CE					9·5				12				
	K174				1 38½	1 45	6½/	0 4CE					7·4				14				
	K194				1 48½	2 03½	15/	0 23E					8·3				16				
	K135				2 08½	2 24	15½/	0 CCE					8·4				18				
	K65				2 28	2 42½	14½/	0 18W					8·3				20				
	K220				2 46½	3 19½	33/	0 55W					9·2		NeA	10³	22				T=16 H=31 Stopped by RAIN
2274	HR 2674A	7 02·9	-59 09	AIR 13/14	23 58B	0 13	15m,3m,3B,5½	1 55W	15" /Clr	3·36	SCA/1·2	120/7.0	5·73 B	B9	NeA	15³	6,8,10	IIaO	MS	Cy	No continuation
	B				0 15½	0 27	4½,6B/8	2 10W					6·75				12,14	Bk back sh 26cm			
	HR 2677A	7 04·8	-34 44		0 35	0 42	5½/8	2 20W	1-1·5"				6·74	F0			16				RA
	F				0 42	1 02	20/30	2 45W					8·25				18				
	HR 2726A	7 11·8	-36 31		1 13½	1 17	3½/	2 50W					5·89 6·21	G5			20				
	B				1 20½	2 09	22/	3 40W					8·42				22,24				
	3661 AB	9 11·8	-43 32		2 16½	2 14½	3m/	1 53W	1"				5·85 6·07				26				
	Bc				2 23	2 29	6·7	2 03W					6·84				28				
2275	3831 A	9 35·9	-48 40		2 57	2 59	5m/	2 05W					6·5	A7			E	Naked			Stopped by back cloud
	B				3·08	3 36	25m/	2 46W	cloud back			E·8	9·7				E				
	5447A	14 44·9	-25 21		3 44	3 48	2C,2B,2½/	2 13E	clearing			12	5·4				6,10	20m 2½V			
	B				3 50	4 05	15m/	1 55E					7·75				8				
	4844A	12 45·1	-68 00		4 14	4 15	2C,2B/4m	0 15W					3·38				6,10				
	F				4 17½	4 19½	15C,2B/	0 20W					3·92				8				
	5122A	13 36·8	-58 18		4 21	4 44	2C/	2 CCE					7·0				22				
	B				4 56	6 24	3B/	1 2CW				1C·6	10·5				24				
2276	α Cen	14 21·8	-39 25		6 38	6 54½	12 3B/	1 10W	1·5"/Clr	2·85	SCA/1·2	67/5C·4					24" mixed		MS		Twin Hunt
2277	Nova Crα 1981 Hercα	18 4C·6	-37 33		7 32	7 52	4B/	3 00E		3·36	100/1·8	120/7C						IIaO		WIZ	

NUMBER	OBJECT	RA	DEC	DATE U.T. 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR	HA END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
227	HR 1652 A	5h 03.6	-35 29	14/15 Apr	2353	2357	4m / √	3h 45W	1.5" / clear	3.86	50µ / 1.2	120 / 7.0	5.8	gK3	NeA	15s	30m D14V	IIaO Baked 36 hrs	m s	Cyp	T=13°C H=52% W=C-S ? Dec Trail ~Centers by other by eye
	B	"	"		0002	0046	44m / 60	4h 32W	1.5-2" clear		0.8		9.1								
	2813 (A)	7h 20.7	-52° 16		0112	0117	5m / √	2h 46W	1.5"		1.2		6.4								
	2814 (B)				0120	0130	10m / √	3h 00W					7.1								
	2813 (A)				0132	0137	5m / √	3h 06W					6.4								
	3251 A	8 15.1	-30 52		0147	0200	13m / √	2h 35W					7.3	G5							
	B				0213	0250	37m / √	3 25W					8.6								
	3455 A	8 40.2	-57 28		0259	0305	6m / √	3 15W					6.7	A2							
	B				0317	0401	44m / √	4 00W			0.8		9.1								2 Dec Trail
2279	4469 A	11 35.6	-35 28		0426	0437	11m / √	1 50W			1.2		6.9	K0	-	-		"			
~~2279~~	B				0439	0526	47m / √	2 41W					8.8								
	4652 A	12h 13.1	-45° 33		0544	0601	17m / √	2h 37W					7.14	gM0							2 Dec Trail
	B				0610	0643	43m / √	3h 20W					8.02								
	5362 ~~4652~~ A	14h 19.3	-42° 55		0654	0702	8m / √	1h 33					6.65	G5							
	B				0706	0737	31m / √	2h 08					8.47								
	5371 A	14h 21.5	-58° 22		0745	0749	3½m / √	2h 17					5.79	gG4							
	B				0752	0805	13m 3m / 18	2h 35					7.47								
2280	α Cen	14h 22.1	-39° 24		0832	0841	2m 3m / 2m √	3h 10m	"	2.85	50µ / 1.2	60 / 5.05	4.21		-	60s	-	IIaO	m s		
	CVASI Nova ~~Hunter~~	18h 40.8	-37° 33		0904	0938	34m / 70	1h 12E	"	3.35	50µ / 0.8	120 / 7.0	8.4			80s	-				T=13° H=49% W=C-S
2281	4482 A	11 [illegible]	-34 [illegible]	AVE 15/16	0045½	0102	16m / 15m	2h 54W	1.5" / clear	3.2	50µ / 1.2	120 / 7.0	6.1	A0	NeA	-		[illegible]			
	B				0453	0118	35m / 50m	3h 30W					8.3								
	30794	7h 51.5	-34 40		0129	0132	3m / 5m	2h 34W					5.49	F5I							
	B				0138	0253	75m / 75	3h 57W			0.8		9.30								
	3715 A	9h 9.7	-31° 42		0313	0318	1m / 20	2h 53W			1.2		7.28	F0							
	B				0326	0351	25m / 35	3h 25W					7.95								
	3817 A	9h 33.1	-42° 55		0402	0408	5m 25m / 12	3h 32W	1.5-2.0"		0.8		5.45								
	B				0409	0413	4m / √	3h 35W			0.8		6.13								
	B				0417	0418	4½m / 6	3h 42W			1.2		6.13								
	A				0419	0422	2½m / √	3h 45W			"		5.45								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
225	HR 1113 A	10h 29.8	−30° 51	15/16 Apr	0436	0438	2m / ✓	3h 04m W	1.5" / clear	336	50μ / 1.2	120° / 0.0	5.53	B9	N.A	15s	Cu-Ne	IIa-O		Cy	
	B			(contd)	0444	0644	2hr / ✓	5h 10m W			1.6		10.28					Baked 3h 105°			
	4952 A	13h 06.8	−60° 12		0704	0707	3m / 4m ✓	2h 52m W			1.2		5.66	B2 WC							Tel. reversed.
	B				0712	0727	15m / 20m ✓	3h 15m W					7.64	WC5 B0Z							
	5551	15h 46.1	−65° 23		0748	0753	5m / ✓	1h 00m W	≤1.0				6.40	A5							N of pair Inaccurate
	5552				0756	0802	6m / ✓	1h 10m W	≤1.0				6.63								S of pair
	5400A	15h 53.9	−60° 07		0820	0825	5m / 8m	1h 25m W					6.20	A2							Dec Test
	B				0828	0908	40m / 55m	2h 10m W			1.8		9.08								
228 3	α Cen	14h 22.0	−39° 25		0939	0950	1, 2, 3, 4m / 3 ✓	4h 22m W	"	285	50μ / 1.2	67 / 5.0	4.21		N.A	60s	"	IIa-O			T=10°C H=42% W=<4"
228 4	HR 2843 A	7h 24.4	−37° 13	16/17 Apr	2347	0002	15m / ✓	1h 35m W	1.5 / clear	336	50μ / 1.2	120° / 1.0	7.11	A3		15s		IIa-O		Cy	T=12°C H=45% W=18" S of pair
	2854 B				0003	0018	15m / ✓	1h 57m W	"				7.19					Baked 3h 165°C			N of pair
	2870	7h 28.1	−31° 49		0025	0031	5m / 8	2h 00m W	"				6.21	B3							
	2871				0035	0044	9m / ✓	2h 14m W					6.98								
	3205 A	8h 09.2	−42° 31		0058	0103	5m / ✓	1h 52m W	1.5				6.57	A0							Dec Test
	B				0108	0132	24m / ✓	2h 20m W	"				7.27								
	3267 A	8h 17.7	−37° 18		0142	0158	16m / ✓	2h 37m W					7.58	A0							
	B	8h 25.9			0201	0220	19m / ✓	3h 00m W					7.84								
	3327 (A)	8h 25.9	−38° 58		0227	0232	5m / ✓	3h 04m W					6.44	A0							
	3328 (B)				0235	0247	12m / ✓	3h 19m W					7.33								
	3558 A	8h 28.6	−47° 48		0300	0302	2m / ✓	3h 30m W					5.38	B5n							Dec Test
	B				0305	0327	22m / ✓	3h 57m W					7.22								
2285	HD 85100 A	9h 48.2	−34° 55		0346	0415	29m / ✓	3h 25m W					8.30	A3				"			
	B				0417	0450	33m / ✓	4h 00 W					8.37								
	HR 4370 A	11h 15.8	−45° 42		0500	0512	12m / ✓	2h 55m W					7.30	F2							Dec Test Declination variable, Note on variation focus change in 1st trail
	B				0516	0537	21m / ✓	3h 20m W					7.66								
	4628 A	12h 09.3	−34° 36		0609	0622 ~~0618~~	5m 6m / ✓	3h 03m W					6.35	A0							
	B				0625	0655	30m / ✓	3h 46m W	1.0-1.5 / clear				8.36								
	5428 A	14h 32.3	−30° 37		0707	0719	12m / ✓	1h 45m W	1.5 / "				7.16	K0							
	B				0721	0927	10m 116m / 116 ✓	3h 55m W			0.6		10.51		very faint - hard to keep on slit, guiding? poss. star streak						VFO Hugging for first 45m trail
2286	α Cen	14h 22.2	−39° 23		0948	0958	2, 3, 4m / 3 ✓	4h 35m W	2"	2.85	50μ / 1.2	67 / 5.05	4.21		N.A	60s	30m @ 14'	IIa-O	ms		T=9°, H 46% W 22

NUMBER	OBJECT	R A	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2287	HR 3359 A	8h 28.9	−47° 59	17/18 Apr	2347	2347½	1½m / ✓	0h 16 w	2" clear	386	50µ / 1.2	120 / 1.0	5.02	B3	Neon	15s	30m	IIaO	ms	Cay	T=10°C, H41% W26mm
	B				2349	2357	10m / ✓	0h 30 w					6.91				24V	Baker 3.5:65			
	HR 3373 A	8h 30.8	−39° 02		0006	0012	6m / 9m	0h 41 w					6.34	B5 III							
	B				0014	0045	31m / ✓	1h 15 w					8.18								
	C				0047	0118	31m / 80m	1h 43 w					~8.3	B3-A5							
	3439 A	8h 39.7	−40° 13		0126	0128	2m / 3 ✓	1h 50 w					5.22	B4 V							RA Trail - no centers. Dec Trail = RA crystal failed
	B				0135	0210	35m / 70m	2h 30 w			0.8		7.48								
	3489 A	8h 47.9	−58° 41		0247	0257	10m / ✓	3h 15 w			1.2		6.83	A8							Dec Trail.
	B				0300	0311	11m / ✓	5h 28 w					6.70								
	3925 A	9h 53.6	−45° 12		0320	0323	3m / ✓	2h 32 w					5.68	B4 V							Dec Trail
	B				0328	0406	38m / 45	3h 15 w					8.32								
2288	4370 A	11h 15.5	−45° 46		0444	0459	15m / ✓	2h 45 w	2"-1.5				7.30	F2	~	~	~	~	~	~	RA w 1.5-2" 3 sequential Dec Trail balances but << 10% extinction
	B				0504	0527	23m / ✓	3h 13 w					7.66								
	~~4444~~ 0550	11h 31.4	−29° 11		0536	0541	5m / ✓	3h 12 w					6.21	dF2							
	4443				0544	0550	6m / ✓	3h 21 w					6.34	dF7							
	5120 A	13h 35.9	−26° 27		0600	0604	4m / ✓	1h 30 w					5.49	A3							
	B				0606	0616	10m / ✓	1 42 w					6.95								
	5141 A	13h 40.8	−54° 30		0623	0625	2½m / ✓	1h 45 w					5 20	B8 V							
	B				0628	0637	9m / ✓	1 58 w					6.61								
	5210	13h 50.7	−32° 57		0648	0652	1m 2m / 1½ ✓	2h 00 w					4.41	B5 III							RA Trail - no centers. Dec Trail - " "
	5211				0658	0715	4½ 6m / 4½ ✓	2h 25 w					6.03	B8 V							
2289	S 5cc	15h 57.5	−22° 33'		0745	0749	6 6 12 24	0h 50 w	~				2.21	B0.5 IV	~	~	~	~	~	~	
	ω' Sco	16h 05.7	−20° 37		0800	0810	2m 4m 8m / ✓	1h 10 w					3.41	B1 V							
	ζ Sco	16h 29.1	−25° 05		0818	0822	30s 1m 2m / ✓	0h 55 w					4.65	B2 V							
	Nova Herda	18h 40.6	−37° 33		0837	0919	42m / 80	0h 20 E			0.8		~8.8								
2290	α Cen	14h 22.0	−39° 25		0846	0957	2m 3½ 5 / 5 ✓	4h 38 w	24" clear	285	50µ / 1.2	67 / 5.05	4.21		N.A.	60s	30m 2TC	IIIaO	ms		T9, H42, W22
2291	HR 3542 A	8h 52.0	−52° 03	18/19 Apr.	0015	0025	10m / ✓	0h 37 w	24" clr 1.5-2.0	386	50µ / 1.2	120 / 1.0	6.57	A0	~	15s	~	2 Exact	~	Cay	T10, H46, W12 Dec Trail. 5 Elevation to many
	B				0030	0115	45m / ✓	1h 27 w					8.41								
	3781	9h 29.8	−31° 50		0128	0133	5m / ✓	1h 08 w	2"				6.21	A0							
	3780				0135	0147	12m / ✓	1h 22 w					7.09								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2291 Cont	HR 4074 A	10h 20.1	−55° 58	18/19 Apr	0157	0200	80s, 40s / 80 ✓	0h 45 w	1.5"-2" / clr	3.36	50μ / 1.2	120 / 7.0	4.40	B3 IV				IIa-O	mg	Cy	RA Trail
	B			(Cont)	0205	0246	4m ✓	1h 31 w	"				8.45								Dec Trail. no color.
	4135	10h 31.2	−44° 58		0256	0259	3½m ✓	1h 34 w					5.56	B8							RA Trail
	4136				0303	0308	5m ✓	1h 42 w					6.01								DECTRAIL
	4401 A	11h 22.5	−64° 50		0345	0348	3m ✓ streaky	1h 31 w					5.30	B5							Tel E Trail. Prob. partial on rel
	B				0350	0359	8m ✓	1h 42 w	1.5"				6.67								≤ 20% contam - 1.5" clearing ~10% " "
	A				0404	0407	5m 2 ✓	1h 50 w					5.30	B5							
2292	HD 99279 A	11h 24.1	−61° 31		0444	0544	60m ✓	3h 25 w					8.70	K5/M0 V	MeA	15s		IIa-O Baked 3 hrs @ 65°	mg		
	B				0545	0745	120m ✓	5h 26 w			0.6		10.16								Full moon 6° away
	HR 4844	12h 45.1	−67° 57		0750	0752	18s, 36s / 36s ✓	4h 17 w			1.2		3.38	B1.5 V							?, poss 3" contam, ≤ 15%.
	B				0753	0759	36s, 72s / 72 ✓	4h 24 w	"				3.42								
2293	τ Sco	16h 34.6	−28° 11		0830	0832	6s, 12s, 24 ✓	1h 03 w					2.56	B0 V							
	HR 6577	17h 37.9	+13° 18'		0842	0911	4m, 8m, 15m / 10m ✓	0h 35 w					-6.7	Fe III							
	χ Lyr	18h 36.1	+38° 40'		0917	0919	2s, 4s, 8, 16 ✓ streaky	0h 12 E	3"				0.02	A0 V							
2294	α Cen	14h 22.0	−37° 26		0938	0955	5s, 10s, 20m / 5 ✓	4h 39 w	2½"	2.85	50μ / 1.2	61 / 5.05	4.21			60s	30m @ 15 V	IIa-O			T 10°C, H 44%, W 2
2295	HR 2468 B	6h 37.9	−61° 31	19/20 Apr	2350	0002	12m / 18	2h 35 w	2" / clr	3.36	50μ / 1.2	120 / 7.0	6.89	G0		15s	30m @ 14 V	IIa-O			T 11°C, H 47%, W 5 (some typical [cuppa type] ~10% contam
	A				0013	0115	6½m / 20	3h 50 w	1.5" / "		0.6		4.65					Baked 3 hrs @ 65°			
	3260 A	8h 14.7	−62° 51		0130	0140	2m, 3m, 2 ✓	2h 35 w			1.2		5.35	A2							2nd Trail (some diff type H)
	B				0146	0216	30m / 45	3h 13 w					8.19								
	3223 A	8h 07.4	−68° 31		0236	0238	2m / 1½m	3h 40 w					4.30	B5 III							
	B				0242	0255	13m ✓	3h 58 w					7.38								
	3432 A	8h 36.9	−62° 47		0304	0313	9m ✓	3h 47 w					6.51	gK0							
	B				0315	0530	135m ✓	6h 02 w					10.82								Light contam ~10%
	3890	9h 47.1	−64° 59		0539	0540	40s, 245 / 30 ✓	5h 03 w					3.29	A9 II							
	3891				0548	0555	7m ✓	5h 19 w					6.34	F0							
2296	HR 4065 A	10h 18.8	−64° 34		0640	0648	8m / 10	2h 40 w	1.5-2"				6.40	A0	"	"		"			-10% contam N* heavy contam -10% contam S*
	B				0654	0704	10m ✓	5h 57 w					6.56								
	4615 AB	12h 05.4	−65° 36		0714	0726	12m ✓	4h 32 w	2" / "				6.72	wF8							
	C				0730	0831	61m ✓	5h 35 w					8.49								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2296	HR 4730	12h 26.0	−62° 59	19/20 Apr	0848	0850	10m 10s / 15	5h 34 W	2½ clr	3.36	50µ / 1.2	120 / 7.0	1.08	B1 II	NeA	15s	3m 14s	IIa-O Baked	hfs	Cs	Dec Trail.
(cont'd)	4731			(cont'd)	0851	0853	14m 14s ✓	5h 37 W					1.47	B3 V							
	4729 C	12h 25.9	−63° 01		0900	0904	4m ✓	5h 48 W					5.1	B5							
2297	α Cen	14h 21.8	−39° 25		0934	0949	3m 45s / 4½ ✓	4h 36 W		2.85	50µ / 1.2	67 / 5.05	+.21		~	60s	32m 5s	IIa-O			T 9°C, H 43%, W 16
2298	HR 2412 A	6h 31.7	−58° 48	20/21 Apr	2335	2339	4m ✓	2h 21 W	3½ mod/clr	3.36	~	120 / 7.00	5.66	B9	~	15s	3m 14s	IIa-O			T 9°C, H 45%, W 18
	3079 A	7h 57.4	−34° 39		2357	0001	3m ✓	1h 23 W	3" clr				5.49	F5 I				Faded! 3h 26s			
	B				0007	0122	7m ✓	2h 44 W	1.5 - 2'		5.8		9.30								Dec Trail
	3205 A	8h 08.8	−42° 35		0138	0145	7m 9s ✓	2h 50 W	2"		1.2		6.51	A0							
	B				0151	0218	27m ✓	3h 21 W	~				7.74								Dec Trail
	3439 B	8h 39.5	−40° 12		0230	0340	70m ✓	4h 15 W	2" - 3½"		5.8		9.48				9m 14s				Dec Trail - 15% - rain
	4804 A	12h 36.5	−75° 14		0500	0515	15m ✓	1h 55 W	3"		1.2		6.64	B9			Focus	Ref failed - removed after 1 hr			Seeing too poor for B. Dec Trail:
2299	β Vir	11h 49.5	+01° 53		0555	0554	45s 55s 45s ✓	3h 20 W	"				4.16	F1 IV	~	~					
	η UMa	13h 46.8	+49° 21		0615	0627	1m 27s 1m ✓	1h 50 W	2½ mod				1.86	B3 V							
	ε Sco	16h 19.4	−24° 07		0640	0650	1½m 3m 5s ✓	0h 16 E	3" clr				5.35	A5 II							
	τ Her	16h 18.9	+46° 18'		0703	0734	30s 15s 15m ✓	0h 28 W	slit				3.74	B5 III							
2300	α Cen	14h 22.0	−39° 27		0759	0813	2m 7m ✓	3h 05 W	1½" clr	2.85	50µ / 1.2	67 / 5.05	4.21		~	60s	32m 15s	IIa-O			T 9°C, H 44%, W 12 mi Thinning cloud.
2301	HR 3259	8h 17.6	−12° 37	21/22 Apr.	0316	0334	10m 40s ✓	4h 34 W	2½ clr/hazy	3.36	~	120 / 7.00	6.85	G7.5 III	NeA	15m 0s					T 10°C, H 42%, W 18 Negative sky conditions
	α Cen	14h 22.1	−39° 27		0345	0424	5m 2m 4s ✓	0h 42 E	2" cloud patches	2.85	~	67 / 5.05	4.21			60s					passing cirrus cloud.
2302	α Cen	14h 22.2	−39° 28	23/24 Apr	0438	0509	14m 43s ✓	0h 11 W	2½ Cirrus	~	~	~	+.21		~	~					T 9, H 51, W 12
2303	Luna HR 3569	8 57.5	+48 05	24/25 APR	2331	2338	1½m 3m 1h ✓	0 08 W	3" clear/cirrus	3.36	50µ / 1.2	120 / 7.0	3.32	A7 IV	NeA	15s	3m 14s	IIa-O Baked	hfs	Cs	Holes in cu cloud + Rain! T 7 H 75 W 22
	1mm 2107	5 57.9	-9 25		2344	0007	5m 6m ✓	3h 37 W	1½" clear				6.6	F2 IV							
	15 Mon	6h 39.8	+09 53		0018	0025	50s 10s 15m ✓	3h 13 W	~				4.42	07							
	ζ Pup	8h 03.2	−39° 59		0033	0035	5m 2m 2m ✓	2h 02 W					1.99	O5f							
2304	σ CMa	7h 00.8	−27° 55		0058	0115	2m 4m 9m ✓	3h 42 W					5.20	K7 Ib		30s	~	Wet Baked			
	κ Cen	7h 43.2	+24° 25		0114	0136	2m 4m 20s ✓	3h 22 W	2½"				4.5	G2 IIIa							
	HR 3538	8h 53.3	−5° 28'		0149	0232	6m 4m 20s ✓	3h 48 W	1½"				6.6	G3 V							
	31 Com	12h 50.6	+27° 34'		0242	0305	3m 4m 12m ✓	0h 17 E	2 spot Cirrus				5.63	G0 III?							H 85
2305	HR 4577 A	11h 57.5	−40° 55'		0323	0358	35m ✓	1h 30 W	1½"				7.87	K0		15s	~	Baked			
	B				0400	0541	1m 21s ✓	3h 13 W	1½ - 3"				10.24								10-15% cirrus for collimating 40sec Dark
	4636 A	12h 10.0	−45° 18		0546	0615	29m ✓	3h 35 W	2"				7.72	K0							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2305 cont.	HR 4819 A	12h 40.4	−48° 57	(24/25 Apr.)	0626	0628	15s, 30s, 25s ✓	3h 16m W	1.5+ / clear	3.36	50μ / 1.2	120 / 7.0	2.84	A0 III	NeA	15s	30s & 4V	IIaO Baked	ms	Cy	N7 pcm 3 no contam.
	B				0632	0634	15s, 30s, 30s ✓	3h 22m W					2.97								S " "
	5189 A	13h 47.6	−35° 38		0640	0652	12m / 15	2h 34m W					7.13	G3 V-I							
	5559 A	14h 54.9	−47° 48		0707	0711	4m ✓	1h 45m W					6.04	B9 V							
	B				0716	0724	8m ✓	2h 00m W					6.79								} Dec Trail + "faint" no contam.
2306	λ Ser	15h 45.3	+7° 26		0747	0753	1m, 2m, 4m / 3 ✓	1h 38m W	"	"	"	"	5.03	G0 V	-	-	-	-			
	K CrB	15h 50.2	+35° 40		0803	0824	3m, 6, 12m / 8 ✓	2h 03m W					5.6	K1 IIIa							
	ε CrB	15h 56.5	+26° 56		0833	0848	2m 4.8 / 3 ✓	2h 20m W					5.38	K2 IIIab							
	μ Her	17h 45.3	+27° 45		0857	0907	50s, 125s, 225s, 275s ✓	0h 52m W					4.14	G5 IV							
2307	α Cen	14h 21.8	−39° 26		0932	0945	2m, 3½, 7m / 4 ✓	4h 52m W	2"	2.85	"	61 / 5.05	4.21			60s	-	IIaO			Te, H67, W22
2308	HR 2513	6h 45.0	−52° 10	25/26 Apr	2352	0025	50m, 12m	3h 12m W	2½ / clouds	3.35	"	120 / 7.0	7.1	G6 Ia6		15s		II:O			T8, H74, W10 also cirr.
	HD 64616	7h 53.0	−26° 14		0041	0142	61m / 120 -	3h 22m W	"				7.9	K0 III				Baked			
	ξ Leo	10h 15.5	+23° 31		0200	0212	2m, 4m, 4m ✓	1h 30m W					3.74	F0 III							
	N Vel	9h 31.1	−56° 58		0230	0239	1½, 2½, 5m / 5 ✓	2h 30m W	some cirrus				4.68	K5 III							
	Jupiter III	12h 09.4	+00° 39		0254	0325	5m, 9h 16m / 32m	0h 50m W	more "				6.5	G2 V							
2309	ε Cen	14h 21.8	−39° 25		0411	0431	2m, 3½, 6m 3 / 3 ✓	0h 20m E	2½" / cloudy	2.85	"	61 / 5.05	4.21			60s	-	IIaO			
2310	HR 4262 A	10h 52.4	−70° 38		0520	0526	5½m / 14m	4 05W		3.35	"	120 / 7.0	6.42	B8		15s		" Baked			10-15% contam p.x.
	B				0532	0546	14m / 50m	4h 27m W					7.14								} Dec Trail — <10% contam
	4804 A	12h 36.8	−75° 15		0601	0613	12m / 30m	3h 11m W	2+" / clouds				6.64	B9							Dec Trail - no contam
	ξ Boo	14h 50.4	+19° 10		0633	0644	3m 6m / 4m	1h 27m W	"		0.8		5.30	G8 II							Stopped by clouds. [illegible]
2311	Nova Hercules	18h 40.6	−37° 33		0803	0834	2m, 4m, 10m, 45m / 15 ✓	0h 32m E	2" / clear + cirrus	100μ / 0.8	120 II / 7.0	≥8.7				1s	-	IIaD	ms	WIZ	T6, H83, W10. T7, H79
2312	21 Lac HR 3569	8 57.5	+48 07	26/27 Apr	23 28½	23 ~~37~~	1, 1½, 2½	0h 20m W	3" / clr	3.33	50 / 61.2	120 / 7.0	3.32	A7 III		1s	-	IIaO Baked.	MS	Cy	E7 H
	HR 2513	6h 45.3	−52° 11		23 50	0015	16m 8m / 12	3 07m W	2" - 1½"				7.1	G6 Ia6							
	Jupiter III	12h 09.2	+00° 38'		0024	~~0056~~	~~4m, 8m, 16m, 32m~~	0 36E					6.5	G2 V							
	HR 3259	8h 17.5	−12° 40		0105	0138	5m, 9, 18m ✓	2h 57m W					6.15	G7.5 V							
2313	HR 3831 A	9h 35.8	−48° 40		0155	0201	6m ✓	2h 03m W	1½"				6.50	Ap.							
	B				0204	0257	53m ✓	2h 58m W	1½-1"		0.6		9.73								
	4718 A	12h 23.6	−41° 17		0302	0321	19m ✓	0 34m W			1.2		7.57	K0							
	B				0324	0420	56m ✓	1h 33m W			0.8		9.55								
	4262 A	10h 52.0	−70° 36		0436	0444	8m ✓	3h 30m W	1½-2"		1.2		6.42	B8							} Dec Trail —
	B				0450	0510	16m, 24	3 56h W	"				7.14								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2313	HR 1055 6.5A	12h 07.3	-63° 45	26/27 APR	0525	0615	50m /	3h 46m W	2" / Cir	3.33	100 / 50	120/70	8.86		NeA	15s	30m at 14W	IIaO hated	MS	Cy	
Contd	B			Contd	06 18	07 24	63m /	4h 53m W			/6.6		9.67								
	~~7730~~	12h 24.7	-63° 00		0130	0732	10h 26m /	4h 46m W			/1.2		1.07	B1 V							} Re Thy
	7731				0733	0735	10h 26m /	4h 49m W			"		1.47	B3n							
2314	HR 5447	14h 33.6	+29° 48		0800	0812	13h 36m /	3h 15m W			"		4.81	F2V							
	5634	15h 06.3	+24° 56		0817	0831	24h 8m /	3.0 W					5.36	F5V							
2315	α Cir	14h 21.8	-39° 1.7		0847	0857	2h 35m /	4h 13m W		2.85	50m / 1.2	61/50.5	+2.1			6s		II.0	MS		T9, HS 2, L 12
2316	NGC 5466 Sp. 1980	18 18.4	-24 47	27/28 APR	0513	0558	4h 45m /	1.20W	52" / CIR	3.36	100/0.6	120/70						IIaD	MS	W12	T11, HH1
2317	NGC 5466 (HCM 1A)	18 40.6	-37 33	27/28 MAY	0756	0832	30m /	0 10W	3-5" / Cirrus	3.36	100/0.8	120/70			NeA	13		IIaD	MS	L12	T9 Hy2 W2C
2318	HR 6596	17 34.1	12 35		08 50	08 51	4x1m /	1.40W	24"				2.23	A5III	NeA	1s	-5,4,3,2				
	6714	17 59.7	2 56		09 03	09 06	5,10,40,30 /	1.25W	Cirrus				3.59	B5Ib			-1,3,5,6				
2319	7387	19 25.6	0 18		09 25	09 27	15,30,60s /	0 20W					5.23	F2Ib			5,4,3				
	7615	19 55.7	35 02		09 35	09 39	13,25,15s /	0 05W	Clear				4.89	KOIII	NeA	1s	1,1,2				
	7475	19 38.6	16 32		09 47	10 02	2h 46m /	0 40W	2-3"				8.03	K4Ib			-4,3,6				T9 HY2
2320	4825/6	12 40.7	-1 21	11/12 MAY	02 47	02 49	3,4,5s /	0.40W		3.36	100/0.8	120/70	3.48	FOV			5,4,2,1	IIaD	MS	L12	T9 HY2
	4540	11 48.7	1 52		02 56	02 58	5,8,12,6s /	1 40W					4.16	F8V			-2,3,5,4				
2321	3975	10 06.3	16 51	14/15 MAY	00 25	00 26	1,2,3s /	1 05W	2" / Cir	3.36	100/2.8	120/70	3.46	AOIb			-5,-4,3	IIaD	MS	L12	T11 HY0
	4540	11 48.7	1 52		00 31	00 32	3,4,5s /	0 30E					4.16	F8V	NeA	1s	-1,+1,+2				
	K245	11 05.5	-58 33		00 52	00 57½	5m /	0 40W					9.08				+6				
2322	3454	8 42.3	3 27		01 26	01 27	4,7,12s /	4 35W					4.30	B3V			-5,4,3				
	4883	12 50.3	27 38		01 43	01 45	10,17,30s /	0 10E					5.63	GOIII	NeA	1s	-3,-1,2				
	4983	13 11.0	27 59		01 51	01 52	5,8,12s /	0 30E					4.85	GOV			+4,5,6				
2323	HD 91629	10 32.7	-59 14		02 21½	02 30	1½,2,3m /	2 45W					7.9	GOIab			-5,4,3				
	6081	16 14.5	-24 07		02 43	02 46	3,12,18s /	2 50E					5.35	A5II	NeA	1s	-1,+1,+2				
	HD 166371	17 39.7	-32 13		03 03	03 05	15,30,45s /	5 50E					6.2	K2.5Ib			+4,5,6				
2324	6212	16 40.6	31 38		03 49	04 50	1,2,4,8,22s /	2 00E					2.82	CIII	NeA	1s	-5,-4,-1				
	6623	17 45.7	27 44		03 54	04 00	2,3,4s /	3 00E					3.35	G5IV			+2,3,5				
2325	1865	05 31.9	-17 51	22/23 MAY	23 16	23 17	1,2,3,5s /	5 05W					2.81	FOIb			-5,-4,1			L12	T14 HY1
	3314	08 24.7	-3 51		23 34	23 35	1,2,3,4s /	2 30W					3.88	AOV			+2,3,6				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	~~CALIB~~ POSN	EMUL	DEV	OBS	REMARKS
2326	HR 3974	10 06.3	35 21	22/23 MAY	00 01	00 02	4,7,10^{s}	1 15W	2" / SOME CLOUDS	3.36	100/C.8	120/10	4.66	A7 V			-5,4,3	IIaD	MS	CWZ	
	4357	11 13.1	20 37		00 13	00 14	1,½,½^{s}	0 20W					2.68	A4 V	NeA	15	-1,1,2				
	4359	11 13.3	15 32		00 22	00 23	1,2,1^{s}	0 30W					3.30	A2 V			4,5,6				
2327	4534	11 48.1	14 40		00 44	00 46	4x 1^{s}	0 15W					2.23	A3 V	NeA	15	-5,4,3,1				
	4825/6	12 40.7	-1 21		00 52	00 53	1,2,3,4^{s}	0 30E					3.98	F0 V			2,3,5,6				
2328	NGC3532 K179	11 05.5	-58 33		01 24½	01 44	16½^{m}	1 55W					10.22				-5				
	K200				01 45	02 09½	22½^{m}	2 20W					10.44				-3				
	K213				02 11½	02 32	20½^{m}	2 45W					10.43		NeA	15	-1				
	K3				02 34	02 53½	19^{m}	3 05W					10.32				+1				
	K17				02 56	03 16	20^{m}	3 30W					10.38				+3				
	K32				03 19	03 41	22^{m}	3 55W					10.46				+5				
2329	HR 5447	14 33.9	29 50		04 00	04 01	4,6,8,10^{s}	0 45W					4.81	F2 V			-5,4,3				
	5634	15 06.5	25 57		04 11	04 12	6,9,12,16^{s}	0 25W					5.36	F5 V			+2,3,5,6				
2330	NOVA CrA81	18 40.6	-37 33		05 03	05 23	20^{m}	2 00E									-5				
2331	HR 6752	18 04.5	+2 30		07 34	07 35	3,5,7,9^{s}	0 50W					4.70	K0 V			-5,4,3				
	7447	19 35.7	-1 21		07 40	07 41	2,3,4,5^{s}	0 35E					4.28	B5 III			2,3,4,6				
2332	7741	20 14.7	23 26		08 33	08 35	15,30,45^{s}	0 20E					6.2	C2 Ib			-5,4,3				
	7906	20 38.8	15 51		08 43	08 44	1,2,3^{s}	0 35E					3.71	B9 III			1,1,2				
	8321	21 ~~36.6~~ 45.2	22 52		08 51	08 53	30,45,60^{s}	1 30E					6.72	K0 Ib			4,5,6				
2333	8232	21 36.6	-5 40		09 03	09 14	1,2,3,1^{s}	0 55E					3.73	G0 Ib			-3,4,2,1				
	8413	22 04.7	4 57		09 22	09 23	4,7,13,10^{s}	1 20 ~~2 00~~ E					5.28	F8 II			2,3,5,6				
2334	NGC 3532 K45	11 05.5	-58 33	05/06 ~~MAY~~	23 44	00 44	60^{m} / ✓	1 55W	2-3" / CLR	3.36	100/08	120/10	9.83		NeA	10^{s}	SPECTRA ~~ABSENT~~	IIaO	MWPZ	CWZ	T=13°C H=28% T=6 H=~~77~~
	K85				00 47	01 45	58^{m} / ✓	2 55W	2-2½"				9.71								
	K148				01 46½	02 48½	62^{m} / ✓	3 55W	2-2½" / SOME CLOUD				9.84								clouds moved in during last 10^{m} T=6 H=34
	K141 ~~K191~~ ~~K184~~				02 55	03 15½	20½^{m} / ✓	4 25W					8.52 ~~9.75~~								clouds now past over from south. T=6 H=E
	K98				03 17	03 46	29^{m} / ✓	4 55W	/ CLR				8.93								
	K172				03 49	04 14	25^{m} / ✓	5 25W	/ SOME CLOUD				8.67								
	K157				04 17	04 51	34^{m} / ✓	6 00W	2-3" / CLR				8.92		NeA	10^{s}					T=6 H=37

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2335	NGC 3532 K184	11 05.5	-58 33	06/07 JUNE	00 03	00 28	25m ✓	1 40W	2"	3.36	100μ/0.8mm	120/7.0	9.75		NeA	10s 6	spot 30m at 14V	IIaO Baked 3 hrs at 65K	MWP2	W1Z	T=9°C H=34% Scattered Cloud
	K206				00 29	00 57	28m ✓	2 10W	2"				9.91			8					
	K175				00 59	01 24	25m ✓	2 35W	2"/CLR				9.79			10					
	K185				01 25½	01 52½	27m ✓	3 05W					9.84			12					
	K217				01 55	02 22	27m ✓	3 35W					9.82 ~~10.00~~			14					
	K215				02 25	02 58½	33½m ✓	4 10W					10.00			16					
	K222				03 00	03 24½	24½m ✓	4 35W					9.62			18					
	K235				03 27½	03 55	27½m ✓	5 10W					9.73			20					
	K146				03 58	04 39	41m ✓	5 50W					10.04		NeA	5s 22					T=11°C H=33%
2336	K123	11 05.5	-58 33	07/08 JUNE	23 45	00 16	31m ✓	1 30W	2"/CLR				9.90		NeA	5s	spot 30m at 14V	IIaO Baked	MWP2	W1Z	T=11°C H=36%
	K125				00 17	01 57	100m ✓	3 15W			/0.6		10.73								
	K249				01 59	03 27	88m ✓	4 45W			/0.6		10.57								T=12
	K221				03 28½	03 43	14½m ✓	5 00W			/0.8		8.91			12					
	K107				03 45	04 23	38m ✓	5 40W					9.89			14					
	K9				04 24½	04 47½	23m ✓	6 05W					9.20		NeA	5s 16					T=11 H=36
2337	K126	11 05.5	-58 33	08/09 JUNE	00 59	01 37	38m ✓	3 00W	2"/CLR				10.04		NeA	5s 6	30m at 14V	IIaO Baked (1 day old)	MWP2	W1Z	T=10 H=30
	K103				01 38	02 13	35m ✓	3 35W					9.92			8					
	K697				02 14	02 45½	31½m ✓	4 05W					9.92			10					
	K36				02 46½	03 23	36½m ✓	4 45W					9.94			12					
	K115				03 25	03 43½	18½m ✓	5 05W					9.14			14					
	K245				03 46	04 05	19m ✓	5 25W					9.08			16					
	K122				04 07	04 27	20m ✓	5 50W					9.14			18					
	K124				04 28	04 53	25m ✓	6 10W					9.30		NeA	5s 22					[illegible]
2338	K101			9/10 JUNE	23 27	00 44	77m ✓	2 10W	2"/CLR	2.85	50μ/0.8	67/5.05	9.01		NeA	60s	30m at 14V	IIaO Baked	MS	W1Z	T=6 H=43
	K108				00 45	01 45	60m ✓	3 10W					8.77								
	K132				01 46	02 38	52m ✓	4 05W					8.58								
	K152				02 41 ~~02 51~~	03 58	77m ✓	5 25W					8.95								
	K194				03 54½	04 48	48½m ✓	6 13W					8.25		NeA	60s					T=6 H=39

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
	NGC 3532:			10/11			74m										spot	IIaO			T=9°C H=32?
2339	K188	11 05.5	-58 33	JUNE	23 12	00 26		1 55W	2" / CLR	2.85	50μ / 08mm	67 / 505	9.01		NeA	60s	x=2414V	Baked 3mm at ~65°C.	MS	WIZ	
	K13				00 29½	01 12	43m	2 40W					8.41								
	K43				01 14	02 24	70m	3 53W	2-2½" Light cirrus				8.63								Cirrus over much of sky
	K65				02 25	03 08	43m	4 35W	2" CLR				8.33								
	K135				03 07½	03 55	45½m	5 25W					8.38								
	K141				03 56	05 04	68m	6 33W	2-2½" cirrus				8.52		NeA	60s		II			T=10 H=29
2340	NOVA CrA 1981	18 40.6	-37 33		06 05	06 30	25m Faint	0 23W	2" cirrus	3.36	100 / 08	120 / 70			NeA	1s		IIaD	MS	WIZ	
2341	K174	11 05.5	-58 33	11/12 JUNE	23 13	23 30	17m ✓	1 00W	2" CLR	2.85	50 / 0.8	67 / 505	7.37		NeA	60s	spot x=2414V	IIaO Baked	MS	WIZ	T=8 H=28 Cirrus on horizon
	K157 K172				23 32	00 42	70m ✓	2 15W					8.92 8.67								
	K172				00 45 43½	01 43	58m ✓	3 15W	some cirrus				8.67								I=11
	K98				01 44	03 13	84m ✓	4 45W	2" Cirrus				8.93								
	K221				03 14	04 49	95m ✓	6 22W	2.3" CLR?				8.91		NeA	60s					T=9 H=25
2342	NOVA CrA 1981	18 40.6	-37 33		05 41	06 06	25m Faint	0 04W	2" CLR	3.36	100 / 08	120 / 70			NeA	1s		IIaD	MS	WIZ	II T=9 H=25
2343	"	"	"		06 59	08 54	2hrs ✓	2 59W							NeA	1s					
2344	K95	11 05.5	-58 33	12/13 JUNE	23 12½	23 34	21½m ✓	1 10W	2" CLR	3.36 3.5	100 / 08	120 / 70	9.55		NeA	5s	spot x=2414V	IIaO Baked	MWP2	WIZ	T=12 H=23
	K61				23 36	23 58	22m ✓	1 35W					9.57								
	K44				23 58½	00 26½	28m ✓	2 00W					9.82								
	K24				00 29½	01 02½	33m ✓	2 40W					10.00								
	K23				01 03½	01 27½	24m ✓	3 05W					9.63								
	K79				01 29½	02 54½	90m ✓	4 35W	2-2½" some cirrus				10.62								
	K66				03 00½	03 24	23½m ✓	5 00W	CLR				9.42								
	K193				03 25½	03 56½	31m ✓	5 35W					9.68								
	K207				03 58	04 47	49m ✓	6 25W					10.04		NeA	5s					T=9 H=22
2345	K25			13/14 JUNE	23 15½	23 24	9½m ✓	1 05W	2" CLR				8.49		NeA	5s	x=2414V	IIaO Baked	MWP2	WIZ	T=C H=22
	K56				23 25	00 07	42m ✓	1 45W					9.56								
	K129				00 08	00 20½	12½m ✓	2 00W					8.59								
	K165				00 21½	01 15	53½m ✓	2 55W					9.83								
	K238				01 16½	01 53½	37m ✓	3 35W					10.08								
	K226				01 54½	02 53	58½m ✓	4 35W					10.52								
	K138				02 55	04 07	72m ✓	5 48W					10.65								T=11 H=22
	K234				04 08½	04 58½	50m ✓	6 40W					10.02		NeA	5s					

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2346	NGC3532 E K26	11 05.5	-58 33	14/15 JUNE	23 10	23 59	49m ✓	1 45W	2"/CLR	3.36	100/.05mm	12CA/mm 7.0	10.46		NeA	5s	~~3C~~ 3C82 14V	IIaO Baker 3mm&ESE	MWP2	WIZ	T=10½ H=22 Moon almost full but far away.
	K54				00 00	00 12	12m ✓	2 55W					10.83								
	K111				01 13½	01 33½	20m ✓	3 20W					9.13								
	K242				01 35½	02 11	35½m ✓	3 55W					10.05								
	K223				02 12	03 00	48m ✓	4 45W					10.28								
	K22				03 02½	03 50	47½m ✓	5 35W					10.16								
	K47				03 51	04 46	55m ✓	6 30W					10.18								T=10½ H=21
	~~SKY~~				04 47½	05 02½	15m ✓ noisy, faint	6 45W													
2347	K37	11 05.5	-58 33	29/30 JUNE	00 32	~~00~~ 10½	38½m ✓	3 50W		3.36	100/0.8	120/70	10.84		NeA	1s	-5	IIaD	MS	WIZ	T=8 H=33
	K53				01 12½	01 42	30m ✓	4 25W					10.64				-3				
	~~K58~~																				
2348	NGC 6302	17h13.5	-37°04		02 27	02 47	20m	0 41E	2"/CLR	3.36	100/0.8	120/70			NeA	1s		IIaD	MS	FAUNDEZ & CO.	
	NGC 6302	17 13.5	-37 04		02 51	03 11	20m	0 13E													
2348	H1-36a	17 49.9	-37 02		04 16	04 36	20m	0 32E													
	b	"	"		04 41	05 21	40m	1 11W													
2350	" C				05 36	05 41	5m	1 39W													
	C				05 42	05 52	10m	1 47W													
	a				05 56	06 16	20m														
	Ex				06 32	07 12	45m	2 09W													T=7, H=44
2351	NGC 6302	17h13.5	-37°40	29/30 JUNE	23 44	01 46	60m 30m	2 08E	2"/CLR	3.36	100/0.8	120/70			NeA	1s		IIaD	MS		
					01 23	02 24	45m 15m	0 56E													
	H1-36 a	17 49.9	-37 02		02 28	02 48	20m	1 13E													
2352	H1-36 a	"	"		03 01	03 21	20m	0 48E													
	C	"	"		03 26	04 04	38m	0 04W													
2353	U725 Sgr	18 10 7	-36 05		04 30	10 00	5½ hrs Tech	5 40W	"	"	100/0.6	"			NeA	1s		IIaD	MS	WIZ	T=6 H=45
2354	NGC3532 K48	11 05.5	-58 33	4/10 JULY	23 34½	00 05	30m ✓	3 30W	2½"/CLR	3.36	100/0.8	120/70	10.76				-5	IIaD	MS	WIZ	T=5 H=60 1st Quarter Moon
	K58				00 40	01 10	30m ✓	4 35W					10.63				-1				cloudy
	K59				01 20½	01 49	28½m ✓	5 10W	2-3"				10.57		NeA	1s	-2				T=7 H=45
	K133				01 57	02 43	46m ✓	6 05W	2½-3"				10.90				+4				
	SKY	12 01	-58 30		02 44	02 54	10m	5 20W									+6				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2355	NGC 3532 K100	11 05.5	-58 33	JULY 10/11	23 28	23 56	28m / ✓	325W	2"/CLR	3.36	100μ/0.8mm	120/7.0	10.76				-5	IIaD	MS Developed an extra ~3"	WIZ	T=9 H=35
	K177				23 58	00 34½	36½m / ✓	400W					11.00				-3				
	K176				00 35½	01 08½	33m / ✓	435W					10.85		NeA	1S	-1				
	K191				01 10	01 46	36m / ✓	515W					10.90				+2				
	K205				01 47	02 32	45m / ✓	600W					11.04				+4				T=9 H=30
2356	K31			JULY 20/21	23 30	00 44	74m / ✓	450W	"/CLR	"	"	"	11.74				-5	IIaD	MS	WIZ	T=8½ H=27
	K241				00 48	01 59	71m / ✓	605W					11.56		NeA	1S	-3				T=7 H=26
2357	K38			JULY 21/22	23 21	00 48	87m / ✓	500W	2½"/CLR	"	"	"	11.91					IIaD	MS	WIZ	T=4 H=36
	K161				00 50	01 52	62m / ✓	600W					11.40								
2358	RR Sco	16 55.4	-30 33		03 14	03 39	25m / dark	200W					V=9 10.7		NeA	1S		IIaD	MS	IKS/WIZ	T=2 H=38 MIRA PROGRAM
2359	K90	11 05.5	-58 33	JULY 22/23	23 20	00 41	81m / ✓	455W	2" / CLR	"	"	"	11.84		NeA	1S		IIaD	MS	WIZ	T=4 H=35
	K228				00 47	01 36	49m / ✓	550W	2-3"				11.06								contamination on E edge by K(3)
2360	γ NOR	16 15.6	-50 01		03 10	03 15	50,60,80s / ✓	220W	2-2½"	3.36	100/0.8	120/7.0	5.76		NeA	10S		IIaD	MWP	IKS/WIZ	
	ζ TRA	16 26.4	-70 03		03 26	03 32	17,34,51s / ✓	225W					5.45								
	BS 6070	16 17.1	-28 34		03 39	03 41½	2s / ✓	245W	2½"				4.30								
	σ SER	16 21.1	+01 05		03 51	03 57	50,45,75,105s / ✓	255W	3"				5.15								T=4 H=34
2361	K147	11 05.5	-58 33	JULY 23/24	03 46	00 54	68m / ✓	510W	2" / CLR	"	"	"	11.61					IIaD	MS	WIZ	T=6 11" 2S contamination Negligible star GE (NE) CLS
	K129				00 56	01 60½	4½m / ✓	520W					8.59		NeA	1S					
2362	V725 Sgr	18 10.7	-36 05		01 21½	24 21½	3mn faint	135W	2"						NeA	1S		IIaD	MS		T=5 H=27
2363	BS 6866	18 19.9	+3 22		05 15	05 21½	60,120,180s / ✓	225W	2" / CLR	"	"	"	5.76	C8III	NeA	10S		IIaO	MWP2	IKS	
	BS 6877	18 20.3	+28 51		05 41	05 45½	36,72,108s / ✓	243W	2"				5.00?	A4							
	BS 6868	18 19.5	+21 57		05 58	06 15	160,320,480s 2×UE	320W	2½" → 2"				6.27?	gMO							
	BS 6896	18 24.3	-20 33		06 27	06 39	105,210,315s / ✓	339W	2½" → 3"				6.12	K2II							
	BS 6918	18 26.3	+00 11		06 58	07 05	45,90,135s 2×UE	403W	2½"				5.4?	GO(+AO)	NeA	10S					T=8, H=17
2364	V725 Sgr	18 10.7	-36 05	JULY 24/25	00 18	05 18	5mn Faint	235W	2"						NeA	1S		IIaD	MS	WIZ	T=12 H=24
2365	HR 8321	21 45.2	22 52		06 29	06 31	15,30,45s / ✓	015W	2"				6.72	KOIb			-5,-4,-3				
	553	1 54.7	20 43		06 48	06 49	1,2,1½s / ✓	335E					2.78	A5V	NeA	1S	-1,+1,+2				NiCad batteries dead
	623	2 08.4	25 51		07 00	07 01	8,15,20s / ✓	335E					5.41	F2III			+4,5,6				
2366	996	3 18.4	3 18		07 29	07 31	6,10,15,25s / ✓	420E					5.50	G5V							
	856	2 52.1	16 24		07 43	07 45	30,45,60,90s / ✓	340E					6.74	F5IV	NeA	1S					T=12 H=22

NUMBER	OBJECT	R A	DEC	DATE U.T. 31	U T EXP. BEGIN	U T EXP. END	TOTAL / CORR.	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2365	θ Leo	11 13 3	15 32	JULY 27/28	23 23	23 24	1,2,5,-2.5 ✓	3 50 W	-2 / Cirrus	3 36	100μ/0.8m	120/20	3 30	A2 V	NeA	1s	-5,-4,-2,-1	IIaD	MS	WIZ	T=11 H=20
	β Vir	11 49 8	1 52		23 35	36	2,3,4,5 ✓	3 25 W					4.16	F9 V							
2366	μ Her	17 45 7	27 44		02 23	02 25	2,3,4,5 ✓	0 20 W					4.14	G5 III			6,1,2,4				
	67 Oph	17 59 7	2 56		02 34	02 35	2,3,5,7 ✓	0 15 W					3.99	B5 Ib			2,3,5,6				
2367	NOVA CrA 1981	18 40.6	-37 33		03 17	04 17	1 hr / Faint	1 15 W	1" / CLR+						NeA	1s					stopped by cirrus
2368	ν Aql	19 25.6	0 18		04 37	04 38	5,10,20,15 ✓	0 50 W	2" CLD				5 23	F2 Ib	NeA	1s					
	η Cyg	19 55.7	35 02		04 46	04 47	5,7,10,15 ✓	0 30 W					4.89	K0 III							T=10 H=20
2369	12 Peg	21 45 2	22 52	JULY 29/30	06 35	06 37	12,40,25,18 ✓	0 40 W		"	"	"	6 72	K0 Ib	NeA	1s	-5,-4,-2,-1	IIaD	MS	WIZ	T=7 H=32
	β Ari	1 55.6	20 43		07 46	07 47	1,2,4,-1.5 ✓	2 20 E					2.78	A5 V							T=9 H=31
2370	NOVA CrA 1981	18 40.6	-37 33	JULY 30/31	00 31	04 03	1/2 hr / Slightly Faint	1 10 W	1-2 / SME CLD						NeA	1s		IIaD	MS	WIZ	T=9 H=33
2371	14 Ari	2 08.4	25 51		08 19	08 20	6,10,15,22.5 ✓	1 55 E	2-3 / CLR				5.41	F2 III							
	HR 856	2 52.1	16 24		08 30	08 32	15,30,45,64.5 ✓	2 30 E					6 74	F5 III	NeA	1s					
2372	K Cet ~~[illegible]~~	3 18.4	3 18		08 51	08 52	5,4,14,21.5 ✓	2 35 E					5 50	G5 V							
	18 Tau	3 44.0	24 47		09 00	09 02	8,13,28,14.5 ✓	2 50 E					5 56	B8 V	NeA	1s					
2373	27 Tau	3 48.0	24 00		09 16	09 17	1,2,3,4.5 ✓	2 40 E					3.54	B8 III							
	78 Tau	4 27.6	15 50		09 24	09 25	1,2,3,4.5 ✓	3 10 E					3.59	A7 III	NeA	1s					
2374	π⁴ Ori	4 50.2	5 ~~18~~ 34		09 42	09 43	1,2,3,2½.5 ✓	3 15 E					3 52	B2 III							
	β Eri	5 06.9	-5 06		09 49	09 50	1,2,1½,1.5 ✓	3 25 E					2.93	F3 III	PRISM CUT						
2375	HR 1279	4 06.6	15 07		10 11	10 14	10,20,30,45.5 ✓	2 00 E	2" / CLR				6.41	F3 V	NeA	1s					T=11½ H=26
2376	NOVA Sgr 1980	18 18.4	-24 44	~~JULY~~ 31/AUG 1	00 09	05 09	5 hrs ✓	2 45 W	2" / CLR		100 / 04				NeA	1s		IIaD	MS	WIZ	T=14 H=24 T=12 H=22

✓ GOOD ✓✓ EXCELLENT

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1981	DEC 1981	DATE U.T. 1981	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB. POS	EMUL	DEV	OBS	REMARKS
2377	S CAR	$10^h08.^m7$	$-61°27'$	AUG 4	00:03 / 16:09	00:39 / 16:46	35m / 35m	STRONG	3"/CLEAR	3.36	100/0.8	120/7.0	7.7	K7e-M4e	NeA	10^s	10	IIaO	McP-2	CrW	T=8°C H=37% WIND=22
	R CEN	$14^h15.^m5$	$-59°49'$		00:55 / 17:01	1:30 / 17:37	35m / 32m	GOOD✓	4"/LOW CLOUD				8.0	M4e-M7IIIe			12				
	RR SCO	$16^h55.^m4$	$-30°33'$		01:41 / 17:47	2:18 / 18:25	36m / 36m	GOOD✓	3"/LOW CLOUD				8.2	M6III-M8III			14				WIND=30
	RU SCO	$17^h4^m.0$	$-43°45'$		02:11 / 18:47	05:01 / 21:08	140m / 200m	with 0.8 WEAK			100/0.6		10.3	M7III-M10e	NeA	10^s	16	FILTER IN!			
2378	RR SGR	$19^h54.^m8$	$-29°15'$		5:28 / 21:35	7:07 / 23:14	99m / 93m	WEAK					9.8	M5e-M6e	NeA	10^s	9				WIND=15
	RU SGR	$19^h57.^m4$	$-41°54'$		7:28 / 23:35	8:44 / 00:52	76m / 73m	WEAK	2"/LOW CLOUD				9.7	M3e-M6e			11				
	O CET	$2^h18.^m3$	$-3°04'$		9:00 / 1:08	9:06 / 1:14	35 / 65 / 45s, 1½m, 65s / 105✓				100/0.8		5.3	M5e-M9e	NeA	10^s	13,15,17				T=6°C H=37% WIND=10
2379	W CEN	$11^h54.^m1$	$-59°09'$	AUG 8	00:39 / 17:01	00:59 / 17:21	20m / 20m	✓FOCUS	2"/CLEAR	3.36	100/0.8	120/7.0	✓10.1	M3e-M8e	NeA	2^s	-5	IIa-D	M-5	CrW	T=2°C H=75%
	R HYA	$13^h28.^m6$	$-23°11'$		1:13 / 17:35	1:23 / 17:46	4m / 4½m, 4m, 4½m	STRONG					<8.6	M6e-M8e			-3,-2				
	RU HYA	$14^h10.^m4$	$-28°48'$		1:34 / 17:56	1:54 / 18:17	20m / 20m	✓HAK sl. wk					✓10.3	M6e			-1	sl. out of focus			
	R CEN	$14^h15.^m2$	$-59°49'$		2:12 / 18:34	2:23 / 18:45	3m / 3½m, 6m✓						>8.4	M4e-M7IIIe			+1,+2				
	R NOR	$15^h34.^m6$	$-49°27'$		2:37 / 18:59	3:10 / 19:32	33m / 30m	✓HAK sl. wk					>10.8	M3e-M6IIIe			+3				
	RU SCO	$17^h4^m.0$	$-43°45'$		3:15 / 19:37	3:37 / 20:00	22m / 21m	✓✓					✓10.5	M7III-IIIIe	NeA	2^s	+5				
2380	V450 AQL	$19^h32.^m8$	$+5°05'$		4:10 / 20:32	4:14 / 20:36	3½m / 3½m	V. sl. string ✓					<8.4	M5-M5.5III	NeA	2^s	-5				
	HD 207076	$21^h45.^m6$	$-2°18'$		4:24 / 20:46	4:27 / 20:49	3m / 3m	V. sl. string ✓					<8.3	MIII			-3				
	RR SGR	$19^h54.^m8$	$-29°15'$		4:37 / 21:00	4:47 / 21:10	10m / 10m	✓✓					✓9.7	M5e-M6e			-1				
	RT SGR	$20^h16.^m5$	$-39°10'$		4:56 / 21:19	5:09 / 21:32	13m / 13m	✓✓					✓10.0	M5e-M7e			+1				
	RU SGR	$19^h57.^m4$	$-41°54'$		5:25 / 21:48	5:39 / 22:02	14m / 13½m	✓✓					✓10.0	M3e-M6e			+2				
	T OCT	$21^h10.^m9$	$-82°11'$		5:49 / 22:12	6:36 / 22:59	47m / 46m	wk					>11.2	M2e-M4IIIe			+3				
	T GRU	$22^h24.^m6$	$-37°40'$		6:41 / 23:04	7:06 / 23:29	25m / 21m	✓ str. wk'd					✓10.5	M1IIIe-M7IIIe	NeA	2^s	+5				
2381	S PSA	$22^h02.^m7$	$-28°09'$		7:34 / 23:57	8:14 / 00:37	40m / 44m	sl. string					<11.3	M3e+M5IIIe	NeA	2^s	-5				
	R PHE	$23^h55.^m5$	$-49°54'$		8:23 / 00:46	8:41 / 1:04	18m / 18m	✓HAK sl. wk					✓10.3	M3e			-3				
	T SCL	$0^h28.^m3$	$-38°01'$		8:50 / 1:13	9:09 / 1:32	19m / 17m	✓HAK sl. wk					>10.3	M3			-1				
	R HOR	$2^h53.^m2$	$-49°58'$		9:20 / 1:43	10:20 / 2:43	60m / 60m	✓✓					✓11.6	M5-M7e+III			+1				
	30 PSC	$0^h00.^m9$	$-6°07'$		10:27 / 2:51	10:30 / 2:54	175 / 25s	✓35s					✓6.1	M3III	NeA	2^s	+3,+4				T=3°C. H=86%
2382	R CAR	$9^h31.^m7$	$-62°42'$	AUG 9	23:57 / 16:22	00:02 / 16:27	5½m / 5m	✓HAK sl. wk	2"/CLEAR	3.36	100/0.8	120/7.0	✓8.4	M4e-M8e	NeA	2^s	-5	IIa-D	M-5	CrW	T=7°C H=50%
	S CAR	$10^h08.^m7$	$-61°27'$		00:10 / 16:36	00:20 / 16:46	1m / 1½m / 2m	✓3m					<7.5	K7e-M4e			-3,-2,-1	sl. out of focus			
	XZ CEN	$12^h23.^m2$	$-35°31'$		00:40 / 17:06	01:50 / 18:16	3m 70m / 107m	wk					>10.5	M5			+1				
	R HYA	$13^h28.^m6$	$-23°11'$		2:00 / 18:26	2:09 / 18:35	1m / 1½m / 2m / 3m	1½, 3✓					>7.6	M6e-M8e	← NeA 2^s		+3,+4,+5				

✓GOOD
✓✓EXCELLENT

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1981	DEC 1981	DATE U.T. 1981	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR.	H.A. END QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB Pos'N	EMUL	DEV	OBS	REMARKS
2383	W HYA	$13^h47.^m9$	$-28°16'$	AUG 9	2:29 / 18:56	2:45 / 19:12	16m / 13m	✓✓	2"/CLEAR	3.36	100/0.8	120/7.0	✓9.5	M8e-M9e	NeA	2^s	-5	IIIa-D	M-5	CRW	T=8° H=39% } W=25
	R CEN	$14^h15.^m2$	$-59°49'$		2:52 / 19:18	3:00 / 19:26	8m / 6m	✓✓					>8.4	M4e-M7IIIe			-3				
	S LIB	$15^h20.^m2$	$-20°19'$		3:07 / 19:33	3:32 / 19:58	25m / 24m	✓ H+K sl wk					✓10.5	M2e			-1				
	R NOR	$15^h34.^m6$	$-49°27'$		3:42 / 20:08	4:21 / 20:47	39m / 33m	✓					>10.8	M3e-M6IIIe	NeA	2^s	+1				
	V450 ARA	$19^h32.^m8$	$+5°05'$		4:31 / 20:58	4:37 / 21:04	11m/2½m / 2½m	✓2½ wk					✓8.1	M5-M5.5III			+2,+3				
	HD 207076	$21^h45.^m6$	$-2°18'$		4:44 / 21:10	4:49 / 21:15	11m/2½m / 2½m	1½✓✓					<8.1	M7III			+4,+5				
2384	T OCT	$21^h10.^m9$	$-82°11'$		5:17 / 21:43	6:40 / 23:07	83m / 73m	✓ H+K sl wk					>11.7	M2e-M4IIIe			-5				
	S PsA	$22^h02.^m7$	$-28°09'$		6:46 / 22:13	7:20 / 22:47	34m / 32m	✓					<11.0	M3e-M5IIIe			-3				
	R IND	$22^h34.^m7$	$-67°24'$		7:27 / 23:54	7:52 / 00:20	25m / 24m	sl wk					>10.6	M2-M4IIIe			-1	sl out of focus			
	S SCL	$0^h14.^m4$	$-32°09'$		8:02 / 00:29	9:04 / 1:31	62m / 56m	✓					✓11.6	M3e-M8e			+1				
	W ERI	$4^h10.^m7$	$-25°11'$		9:19 / 1:47	9:39 / 2:07	20m / 16m	sl strong					<10.2	M7e			+2				
	T COL	$5^h18.^m6$	$-33°44'$		9:44 / 2:11	10:25 / 2:53	41m / 55m	sl wk					>11.5	M4e-M6			+3				T=8°C H=34%
2385	R CAR	$9^h31.^m7$	$-62°42'$	AUG 10	23 [illegible] / 16.23	00 00 / 16:30	6½m / 5m	✓	2"/CLEAR	3.36	100/0.8	120/7.0	✓8.4	M4e-M5e			-5	IIIa-D	M-5	CRW	T=8°C H=34% } W=1!
	S CAR	$10^h08.^m7$	$-61°27'$		00:07 / 16:37	00:09 / 16:39	1½m / 1½m	✓ H+K sl wk					✓7.2	K7e-M4e			-4				
	W CEN	$11^h54.^m1$	$-59°09'$		00:18 / 16:48	00:38 / 17:08	20m / 17m	✓ H+K sl wk					✓10.1	M3e-M8IIIe	NeA	1^s	-3				
	RT CEN	$13^h46.^m9$	$-36°46'$		00:46 / 17:16	2:55 / A.23	129m / 150m	(WRONG STAR) ** !				goal!	✓12.5	M6IIIe			-1	sl out of focus			
	R HYA	$13^h28.^m6$	$-23°11'$		2:50 / 19:29	3:05 / 19:35	6m / 6m	wk Range					✓8.0	M6e-M8e			+1				
	RU HYA	$14^h10.^m4$	$-28°48'$		3:12 / 19:42	3:46 / 20:17	34m / 32m	wk HA					✓10.3	M6e			+2				
	R CEN	$14^h15.^m2$	$-59°49'$		3:52 / 20:32	4:00 / 20:30	7½m / 7m	✓					✓9.0	M4e-M7IIIe	NeA	1^s	+3				T=10°C H=3?% } W=10
2386	T NOR	$15^h42.^m6$	$-54°56'$		4:27 / 20:58	6:02 / 22:33	95m / 160m	wk					✓12.5	M3e-M6	NeA	2^s	-5				W=25-30
	RR SCO	$16^h55.^m4$	$-36°33'$		6:10 / 22:41	6:19 / 22:50	2m / 4m / 3½m	4✓					✓7.7	M6e-IIIe-M5IIIe			-3,-2	not sl out of focus!?			
	T CRV	$22^h24.^m4$	$-37°41'$		6:26 / 22:56	6:47 / 23:18	21m / 21m	✓ H+K sl wk					✓10.5	M1IIIe-M4IIIe			-1				
	V450 ARA	$19^h32.^m8$	$+5°05'$		6:54 / 23:25	6:58 / 23:29	3½m / 3½m	✓ sl wk					✓8.1	M5-M5.5III			+1				
	HD 207076	$21^h45.^m6$	$-2°18'$		7:07 / 23:38	7:09 / 23:40	2m / 1½m	✓					✓7.6	M7III			+2				
	R IND	$22^h34.^m7$	$-67°24'$		7:17 / 23:49	7:59 / 00:30	42m / 42m	✓ H+K sl wk					✓11.2	M2e-M4IIIe	NeA	2^s	+4				
2387	T SCL	$0^h28.^m3$	$-38°01'$		8:21 / 00:52	8:51 / 1:22	30m / 30m	✓ H+K sl wk					✓10.9	M3	NeA	1^s	-5	sl out of focus			
	W ERI	$4^h10.^m7$	$-25°11'$		8:57 / 1:28	9:10 / 1:41	13m / 13m	✓✓					✓9.9	M7e			-3				
	RV PUP	$6^h41.^m9$	$-42°21'$		9:18 / 1:50	9:44 / 2:16	26m / 12m	wk					>9.7	M1e			-1				
	30 PSC	$0^h00.^m9$	$-6°07'$		9:55 / 2:26	9:58 / 2:29	17s 34s / 25s 68s	✓					✓6.1	M3III	NeA	1^s	+1,+2,+3				T=11°C H=3?% } W=5

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
[illegible]	[illegible]	[illegible]	[illegible]	10/11 May	[illegible]	0032	37m ✓	1h55 W	~2" clear	3.34	50μ/1.2	120/7.0	8.32		NOA	15s	30m	IIa-O Baked	M.S.	Cyp	T11 H22 W20 No pois
"	B	"	"		0033	0110	3½m ✓	2h32 W	"				8.29				D14V	3h @ 65°C			S "
	HR 5781A	15h 34.5	−44°50		0118	0122	1m, 1½m 1½ ✓	2h22 W	1.5-2" "				4.51	B5 IV							
	B				0124	0131	7m 5 ✓	2h30 W	"				6.54								no contam.
	AB				0139	0141	1½m ✓	2h41 W	"				~~4.4~~								Dee Trail - Bad in slit
	5904 A	15h 52.3	−25°11		0151	0153	1½m ✓	2h35 W	2" "				4.64	B3.5 IV							Dee Trail
	B				0159	0215	10m ✓	2h50 W					7.01								~~Dee Trail~~ Contam.
	AB				0220	0222	1½m ✓	3h04 W					4.6								RA Trail.
	HR 6236A	16h 49.2	−50°00		0235	0253	18m ✓	2h38 W	1.5-2"				7.44	g2.H8							
	B				0254	0315	21m ✓	3h01 W					7.63								
2389	HR 7989A	20h 51.8	−23°47		0343	0402	19m ✓	0h15 E	"				7.39	K0 III	-	-					
	B				0417	0517	60m ✓	1h00 W			0.8		9.22								poss 5-10% contam.
	AB				0524	0544	~~20m~~ ✓	1h28 W			1.2		7.3								Dee Trail
	HR 8760A	23h 01.4	−36°30		0630	0650	20m ✓	0h24 W					7.51	g2.G9							Dee Trail
	B				0658	0819	81m ✓	1h53 W			0.6		9.96								W20 contam ~10%
	HR 251 AB	0h 52.0	−24°51		0836	0845	9m ✓	0h29 W			0.8		6.9	F2							Dee Trail - A ~1 mag
	A				0850	0858	8m ✓	0h42 W			0.8		6.98	F2							RA "
	B				0901	1001	60m ✓	1h45 W			0.6		9.68								T10 H27 W20
2390	HR 5375A	14h 21.4	−48°11	11/12 Aug	2331	2335	4m 6 ✓	1h51 W	~1.5" clear	"	1.2		5.94	B3 V							T9 H29 W20
	B				2337	0047	70m ✓	3h04 W			0.6		10.05								
	HR 5683A	15h 17.3	−47°44		0057	0057	1½m 11 ✓	2h17 W	~1.5" var		1.2		4.95	B8							N ~20% contam S ~20% contam
	B				0100	0102	1½m 11 ✓	2h20 W					5.08								
	C				0105	0117	12m ✓	2h38 W					7.4								
	HR 6029A	16h 11.0	−28°20		0129	0132	3m ✓	2h00 W					5.80	B9 V							Dee Trail
	B				0135	0212	37m ✓	2h39 W	~2"				8.52								
	AB				0215	0218	3m ✓	2h45 W					5.8								spectra speak ~8
	HR 6134 AB	16h 28.3	−26°23'		0232	0233	20s 30 ✓	2h45 W					2.83	(M1 IB)							
	A				0239	0240	2.5s 30 ✓	2h52 W					~~3.26~~	M1 IB							
	B				0246	0249	2½m ✓	2h59 W					5.26								~25% Contam ca 3. flux ratio & image
~~2391~~	~~HR 7226A~~ HR 6236A	19h 05.2	−37°05		0314	0317	2½m ✓	0h50 W					~~5.45~~ 5.44	~~F8 V~~ g2.A8							N 2 pos ~5-10% contam ~10% contam
	7227 B				0318	0321	2½m 3½ ✓	0h54 W					5.51	F8 V							

NUMBER	OBJECT	R.A.	DEC.	DATE U.T 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2391	HR 8602A	22h 36.0	-46°39	11/12 Aug	0409	0413	4m ✓	1h 45 E	2" clear	5.34	50µ / 1.2	120 / 2.0	5.58	A2	NeA	15s		IIaO Baked 3hr 285°	IIa-S	C7	2 spectra in 3c 3 in dec
	HR 8635A	22h 41.8	-47°14		0427	0434	7m ✓	1h 30 E					6.56	G0							
	HR 8662 A	22h 45.7	-46°58'		0442	0451	9m ✓	1h 15 E	1.5				6.89	A5m							
	B				0514	0814	3h ✓	2h 08 W			.6		11.00								mean of 4 exp = 187 σ
	HR 479 A	1h 38.4	-55°33		0832	0847	15m ✓	0h 12 E	1.5		1.2		7.51	dFé							
	B				0849	0934	45m ✓	0h 35 W			.8		9.05								
	HR 897	2h 57.6	-46°21		0948	0950	18m 36s / 20s ✓	0h 38 E			1.2		3.38	A3 V							Dec Trail
	898				0956	1000	50s 70s / 50s ✓	0h 20 E			"		4.43	A2							
	AB				1005	1007	14s 20s / 28s ✓	0h 12 E	two clear		"		3.0								T 8 H29 W20
2392	HR 5756A	15h 30.5	-20°02	12/13 Aug	2338	2343	5m ✓	4h 55 W	1.5" clear				6.49	A4	"	"	30" 214V	"	"		T10 H35 W 12 1" apart - Ref Dec trail OK - no contam.?
	B				2347	0047	60m ✓	2h 00 W			.8		9.62								
	HR 5846 A	15h 43.0	-41°42		0057	0058	4m ✓	1h 57 W	~2"		1.2		6.07	A0							W 20
	B				0100	0129	29m ✓	2h 29 W	1.5-2"		"		8.32								Dec Trail
	AB				0138	0143	4m ✓	2h 43 W	2"				6.0								
	HR 6006 A	16h 08.1	-32°36		0154	0221	27m ✓	2h 55 W	"				7.67	dG2							Dec Trail 2 spectra
	B				0225	0250	25m ✓	3h 25 W	2h-2" Dec Trail thin				7.78								[Dec Trail thin ?
	AB				0256	0309	13m ✓	3h 45 W	2-1.5"				7.0								Dec Trail
	HR 6477A	17h 25.5	-45°44		0326	0329	3m ✓	2h 45 W	"				5.66	B9							Dec Trail 40 no contam.
	B				0338	0344	6m ✓	3h 00 W	"				6.42								
	AB				0347	0352	24m ✓	3h 02 W					5.2								Dec Trail
	C				0358	0419	21m ✓	3h 35 W					7.6								
2393	HR 8140 A	21h 18.6	-53°32		0445	0451	1h 14m 4m ✓	0h 15 W					6.4	A5	"	"		"	"		Dec Trail
	B				0455	0514	19m ✓	0h 38 W					7.63								
	AB				0519	0521	70s ✓	0h 45 W					4.57								
	HR 8386 AB	21h 59.8	-28°33		0533	0540	2m 3m 2 ✓	0h 22 W					5.36								
	A				0548	0551	3m ✓	0h 34 W	~1.5+ sl vig				5.69	B8 V							2 No contam. Dec Trail
	B				0558	0606	8m ✓	0h 48 W	"				6.79								5% contam.
	A				0610	0620	4m ✓ / 3	1h 04 W					5.69	38 V							No Contam - From deBoer
	HR 8743 A	23h 06.2	-50°46		0633	0640	7m ✓	0h 16 W					6.71	F5							No Contam
	B				0645	0706	21m ✓	2h 8 W					7.58								" "

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC.	DATE U.T. 1981	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2394	HD HR 6334 A	1h 02.9	−60° 11	(12/13 Aug)	0752	0821	29m ✓	0h 02 w	2½" clear	334	50μ / 1.2	120 / 70	8.00	F5	NeA	15s		IIaO	m-s	Cy	N 7 pairs
	B				0824	0851	27m / 35	0h 31 w	<2"				8.08					Baked 3h @ 60°			reformed S " "
	HR 380 A	1h 16.8	−66° 25		0859	0905	6½m / 7½ ✓	0h 30 w	"				6.42	A0							No Cont.
	B				0909	0950	41m / 38 ✓	1h 17 w	1h 5 "				8.63								" " moon set.
	HR 487	1h 39.3	−56° 18		0956	1004	8m ✓	1h 08 w					6.63	K2 V							N 3 pairs
	486				1006	1015	8½m ✓	1h 19 w					6.77	K3 V							S 4 " T9 H38 W8
2395	HR 4804 A	12h 36.7	−75° 17	13/14	2350	2357	6½m / 10	4h 10 w	1.5 clear				6.64	B9	"	"	30m 214V	"	"		T11 H37 W10
	B			Aug	0000	0052	52m / 45	5h 02 w	"		.6		9.50								Dec Trail. V. fast & wk. No contam, slow start.
	HR 5756 A	15h 30.6	−20° 05		0105	0111	5m / 7m	2h 26 w	"		1.2		6.49	A4							
	B				0118	0228	70m / 90m	3h 44 w	"		.8		9.62								Dec Trail Def. No Contam : RA Tracking poor.
	sky (noon)	16h 02.4	−20° 06		0230	0300	30m No Trace!	3h 45 w	"		T2		—	G2 II							sky @ 60° from moon.
	HR 6402	17h 14.3	−26° 33		0309	0313	4m ✓	2h 45 w					5.92	K0 V							
	6401	"	"		0315	0319	4m ✓	2h 51 w					5.97	K1 V							
	C	17h 15.1	−26° 30		0326	0345	19m ✓	3h 17 w					~7.6	K5 V							
2396	β Aql	19h 54.3	+6° 24		0405	0409	1m, 1m, 2m 2m ✓	1h 00 w					4.57	G8 IV	"	"	"	"	"		
	α Sge	19h 39.2	+17° 58		0418	0426	1m, 2m, 4m 3	1h 32 w	2"				4.37 ✓	G1 II							2nd exp. at 2° off
	μ Aql	19h 33.0	+14° 23		0433	0449	2m, 4m, 8m ✓	2h 03 w	.				5.60	K3 IIIb							3rd exp on.
	β Sct	18h 46.2	−4° 46		0504	0515	1m, 2m, 5m 5	3h 16 w					5.32	G4 II CN1							
2397	61 Cyg A	21h 06.0	+38° 38		0601	0650	8m, 14m, 26m ✓	2h 30 w	2-3				6.39	K5 V	"	"					Plate holder-pressure plate loosened - fogs over across plate now.
	1 Peg	21h 21.1	+19° 43		0700	0712	1½m, 3m, 6m ✓	2h 38 w	1.5-2"				5.19	K1 III							
	β Aqr	21h 30.5	−5° 39		0722	0726	24s, 44s, 84s ✓	2h 43 w					3.73	G0 Ib							
	55 Peg	23h 06.0	+9° 20		0736	0803	4m, 7½, 14m ✓	1h 45 w					6.06	M1 IIIab							
2398	6 Tri	2h 15.6	+34° 08		0828	0842	2m, 3½m, 7m ✓	0h 48 E	-				5.47	G0 V	-	-					
	17 Per	2h 50.1	+34° 58		0850	0925	5m, 10m, 20m ✓	0h 38 E					6.08	K7 III							
	ε Eri	3h 32.0	−9° 31		0934	0939	45s, 90s, 180s ✓	1h 06 E	"				4.62	K2 V							
	HR 1697	5h 11.7	−6° 05		0947	1019	5m, 10m, 17m ✓	2h 06 E	1.5-1"				6.87	G7 III							T12 H27 W28
2399	HR 5234 A	13h 55.1	−54° 02	14/15	2337	2343	6m / 9m	2h 37 w.	1.5" clear	3.34	/ 1.2	"	6.58	A0 V	"	"	"	"	"		T12 H30 W8
	B			Aug	2346	0002	16m ✓	2h 57 w					7.62	A1 V							No contam.
	AB				0011	0015	4m ✓	3h 10 w					~6.1								Dec Trail. 50/50 over
	HR 6134 A	16h 28 0	−26° 24		0038	0039	35s ✓	1h 01 w					2.85	M1 Ib							Dec Trail

NUMBER	OBJECT	RA	DEC	DATE UT 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2399 (cont)	HR 6134 B	16h 28.0	−26° 27	(14/15 Aug)	0050	0053	3m ✓	1h 15w	1.5 / Clear	3.34	50μ / 1.2	120 / 7.0	5.26		Aver	15s	3.4m / D14 V	IIaO	m-s	Cy	Dec Trail – Contam ?35%
	" (A)	"	"		0055	0058	3m ✓	1h 20w					–	Contam of Hom B			Behind 3h w 05°				Same time as above exactly, but 2 90° & 2·8.
	– AB				0102	0112	34m 55s ✓	1h 40w					2.7								Rd Trail
	HR 6166	16h 23 3	−29° 39		0124	0129	5m ✓	1h 50w	1.5				6.43	G0 III							
	6105	"	"		0130	0141	11m ✓	2h 07w					7.22	G0 III							
	AB				0150	0155	4m ✓	2h 23w	1.5				6.00								Dec Trail.
	HR 6426 A	17h 17.7	−34° 54		0207	0224	17m ✓	1h 57w					7.26	K1 V							Dec Trail
	B				0229	0309	40m 6a ✓	2h 12w			0.8		8.46								?420% contam.
2400	α Sgr	19h 39.0	+17° 57		0332	0345	1m 3m 6m ✓	0h 50w			1.2		4.37 V	G1 II	"	"	"				
	μ Aql	19h 33.0	+7° 22		0353	0408	2m 4m 8m ✓	1h 26w					5.60	K3 III 2							
	β Aql	19h 57.0	+6° 23		0415	0421	40s 75s 150s ✓	1h 16w					4.57	G8 IV							
	β Sct	18h 46.0	−4° 47		0431	0441	1m 2m 4m ✓	2h 45w					5.32	G4 II CN1							
2401	γ Aql	19h 45.2	+10° 34		0540	0550	75s 150s 300s ✓	2h 55w					4.23	K3 II	"	"	"	"	"	"	
	HR 6729	22h 58.3	+20° 40		0600	0616	2m 4m 8m ✓	0h 10w					~6.1	G2.5 IIIa							
	γ Peg	23h 52.5	+25° 03		0626	0658	4m 9 12m ✓	0h 08E					6.25	M3 III							
	65 ζ Cet	2h 11.8	+8° 45		0718	0721	1m 2m 5m ✓	2h 01E					5.25	G8 II CN-2							2nd spectrum – poss 1m 14m – single Rockhal.
2402	I 27 C	1h 15.0	−68° 52		0750	0825	35m ✓	0h 10w	1.5		0.8		8.54	K2 V:	"	"					<10% contam (OB?)
	D				0827	0941	74m 140 ✓	1h 18w	"		"		8.37	K2 V:							≥15% contam.
	HR 1190	3h 47.7	−37° 41		0950	0953	1m 1m ✓	1h 05E			1.2		4.70	B8							
	1189				0955	1001	2m 3m 2 V	0h 57E			"		5.41	A0							T11 H31 W18
2403		14h 50.2	+19° 11	15/16 Aug	2340	2348	1m 2m 4m ✓	1h 51w	1.5 / Clear				5.30	G8 V	"	"		Behind ~6C			T10 H31 W2
	γ Her	16h 40.3	+31° 40		0003	0006	15s 30s 60s ✓	0h 20w					3.46	G0 IV							
	185 Her	16h 14.5	−8° 18		0012	0027	2m 4m 8m ✓	1h 06w					5.50 V	G2 V.							
	HR 5171 A	13h 46.2	−62° 27		0037	0108	31m 1m 4 ✓	4h 16w					6.80 V	G8 IV-V							
	γ Lup	15h 34.4	−14° 40		0117	0122	50s 100s 200s ✓	2h 42w					4.90	G8 III CN-1							
2404	HR 6693	17h 58.9	−30° 16		0206	0224	18m ✓	1h 20w					6.93	M2 I-II R							Dec Trail
	6694				0230	0300	30m ✓	1h 57w					8.10	G8 II							
	AB				0307	0322	15m ✓	2h 19w					~6.7								sh defocussed approx 5850 angst
	HR 6780 A	18h 08.9	−30° 43		0328	0337	9m ✓	2h 23w	1.5-2				6.73	K0							Landolt.
	B				0339	0407	28m ✓	2h 37w	1.5				8.31								
	AB				0413	0420	1m ✓	3h 06w					6.4								Dec Trail

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 379

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2404 (cont'd)	HR 7226	19h05.2	-37°03	(15/16 Aug)	04h33	04h36	2½ / ✓	2h35 E	1.5 var / clear	3.34	50μ 1.2	120 / 7.0	5.45	F0 V	Ne A	15s	30m 2.14V	IIa-O	m-s	G	~10% cotton / var transp.
	7227				04h37	04h41	3½ / ✓	2h30 E					5.61	F0 V				Baked 3 hrs 60°			" "
	HR 7959	20h50.4	-60°27		04h57	0513	5m,5m / ✓	1h16 E	1.5 hazy				6.43	A2 Vn							1 exp 2 previously
	7960				0520	0528	6½m / ✓	1h32 E					6.76	A3 Vn							Dec Trail
	AB				0534	0537	3m, 4m / ✓	1h40 E					-5.8								RA Trail. 50/50 cotton.
2405	α PsA	22h56.6	-29°44		0633	0634	3s, 6s, 12s / ✓	0h31 E					1.25	A3 V	"	"	"	-	-		
	ψ³ PsC	1h08.5	+19°33		0647	0712	3m, 7, 14m / ✓	1h CLE					6.5	G0 III							
	o PsC	1h44.3	+09°05		0722	0731	1½, 2½, 5m / ✓	1h20 E					5.22	G8 III							
	α Tri	1h51.8	+29°31		0749	0755	20s, 40, 85, 110s / 5s ✓	1h03 E					3.92	F6 IV							
2406	HR 1279	4h06.4	+15°07		0823	0847	3½, 7, 14m / ✓	2h23 E					6.6	F3 V							
	57 Tau	4h18.7	+13°59		0855	0910	4m, 4m, 2m / ✓	2h15 E					5.87	F0 IV							
	HD27808	4h22.9	+21°42		0917	1016	9m, 18m, 33m / 22	1h12 E					7.66	F8 V							T9 H33 W8
2407	HR 4262 B	10h52.5	-70°40	16/17 Aug	2350	0012	22m / 45	6h20 W	1.0 / clear				7.14	-	"	"	"	22m 34. 63c (low wave)			T10 H33 W4 Dec Trail. No Cotton
	A				0020	0027	6½m / ✓	0h35 W	1.5 var.				6.42	B8							" "
	AB				0044	0049	4½ / ✓	6h57 W	"				-6								2 A.T.
	HR 6751 AB	18h08.6	-73°42		0104	0109	5½m / 10	0h00					-6.3	F6 V							
	A				0115	0122	6½m / 9	0h10 W					6.34								Dec Trail
	B				0128	0310	10½m / ✓	2h02 W			.6		10.05								too much cotton
	HR 8280 A	21h45.5	-82°52		0329	0337	7½m / ✓	1h10 E			.8		6.39	gG5							Dec Trail
	B				0341	0359	14m / ✓	0h49 E					7.43								
	HR 8540 A	22h24.9	-65°09		0415	0418	1m, 1½m / 1 ✓	1h10 E					4.50	B8 V							
	B				0422	0516	54m / 70	0h10 E			.8		9.36								
2408	HR 199 A	00h43.7	-62°11		0624	0632	8m / ✓	1h12 E	≤2"		1.2		6.71	F5							Dec Trail
	B				0638	0719	41m / ✓	0h25 E	1.5 ± .5				8.50								Not a cotton
	HR 377 A	1h14.9	-69°03		0738	0741	3m, 2m / 3	0h35 E					5.40	F6 V							1.4 exp. working wrong
	B				0754	0834	40m / ✓	0h20 W	1.5"				8.43								
	HR 1271 A	3h48.5	-85°15		0901	0913	10m / ✓	1h36 E	~2" var				6.59	B9							Dec Trail ≤20% cotton. T10 H29 W15
	B				0923	1007	44m / ✓	0h43 E					8.35								
2409	HR 4262 B	10h52.2	-70°43	17/18 Aug	2338	0025	47m / ✓	6h38 W	2"-1" / clear				7.14	~A0							Dec Trail ~10% cotton T13 H28 W8
	AB				0036	0043	7m / ✓	6h56 W					-6								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2409 (cancel)	HR 6751 A	18h 08.7	−73° 43	(17/18 Aug)	0100	0110	72m ✓	00h 02 E	1.5 clear	334	50μ 1.2	120 5.0	6.34	F6 V	NeAr	15s	30m 214h	IIaC Baked 36 265	ya=5	Cy	Doc Trent.
	HR 5697 A	15h 20.4	−38° 05		0126	0132	52m ✓	03h 15 W	1.5"				6.46	A0 Sr							} Doc Trent
	B				0134	0247	73m ✓	04h 30 W			.8		9.65								
	HR 6244 HB	16h 49.7	−37° 24		0257	0304	5m ✓	0317 W	1.5		1.2		~6.0								Doc Tr.
	A				0311	0316	52m ✓	0330 W					6.33	Ap							
	B				0317	0405	48m ✓	04h 18 W					8.76								
	HR 6832 A	18h 16.5	−36° 44		0418	0421	2m ✓	03h 10 W					4.65	M3 III							Doc Trent.
	B				0426	0512	46m ✓	4h 00 W			.6		9.12					faint overlap of A's diffraction image.			2 ~ 20" E from A
	repeat A				0520	0529	2m 4m ✓	4h 17 W			1.2		4.65								Doc Tr.
2410	ε Peg	21h 43.2	+9° 51		0556	0600	1m 2m 3m ✓	1h 20 W					3.78	K2 Ib			4				
	9 Peg	21h 43.5	+17° 16		0606	0618	3m 7m ✓	1h 35 W					5.54	G5 Ib							2A "good"
	12 Peg	21h 45.1	+22° 54		0624	0706	6m 12m 24m ✓	2h 25 W					6.70	K0 Ib							
	α Agr	22h 04.7	−00° 20		0720	0724	25 50 100s ✓	2h 22 W					3.91	B2 Ib							2A "sharp"
2411	HR 856	2h 51.9	+16° 25		0824	0852	4m 8m 16m ✓	6h 59 E					6.9	F5 III							
	HD 27383	4h 18.8	+16° 29		0859	0859	5m 15m 30 ✓	0h 20 E					7.44	F8 V							
	π3 Ori	4h 48.6	+7° 00		1001	1003	15s 30s 60s ✓	1h 44 E					3.65	F6 V							
	α Lep	5h 32.1	−17° 45		1010	1012	15s 30s 60s 16 ✓	2h 16 E					3.21	F6 Ia							T12 H2C 1.12
2412	HR 5242 A	13h 56.3	−65° 49	18/19 Aug	2338	2352	14m ✓	3h 06 E	1.5 clear				7.30	gG8	"	"	"				T13 H25 1.14
	B				2354	0116	82m 120	4h 27 E	1.5 → 1"		.6		10.49								
	HR 6416 A	17h 17.0	−46° 42		0126	0130	4m ✓	1h 17 W			1.2		6.32	G8 V							
	B				0134	0304	90m ✓	2h 54 W			.6		9.20								
	HR 6855 A	18h 20.8	−61° 36		0315	0323	35 45m ✓	02h 10 W			1.2		5.84	K2 III							LS resp - RA/Cat/Tr changed/reloaded/etc
	B				0328	0425	57m ✓	03h 12 W			.8		9.77								
	HR 7398 A	19h 28.7	−27° 01		0437	0444	6m ✓	2h 20 W			1.2		6.62	K3 III							
	B				0446	0546	60m ✓	3h 24 W	1"		.8		9.71								
2413	HR 8602 B	22h 36.1	−40° 42		0648	0756	7.5m ✓	2h 27 W			.6		~10.5								Doc Tr. not acquire, Ima Streak
	HR 514 A	1h 44.8	−25° 09		0810	0812	2m ✓	0h 35 E			1.2		5.71	F0 V							
	B				0815	0907	52m ✓	0h 30 W			.8		9.56	G4 V							
	HR 749 A	2h 33.0	−28° 20		0912	0914	50s 75s 50 ✓	0h 13 E			1.2		4.91	B9							
	B				0915	0930	15m ✓	0h 05 W					8.12								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2413 (Contd)	HR 963 A	3h 11.4	−29° 04	18/19 Aug	0938	0941	30m, 45m / 45 ✓	0h 23 E	1" / clear	334	50μ / 1.2	120 / 7.0	4.42	F6 V	Ne A	15s	30m dia	IIa O	m-s	cy	T II H 25 W 2
	B				0948	1008	17m ✓	0h 04 W					7.90	G8 V				Poked 3 w.d. @ 3"			Dec. Trail no contam.
2414	(w Boo HR 5600)	15h 01.1	+25° 08	19/20 Aug	0008	0042	8½m, 7½, 17m ✓	2h 50 W	2½ / some cu				~6.0	K4 III wb	~	~					T II H 23 W 15 interrupted 3rd Sp for Cloud
	HR 5924	15h 53.5	+28° 24'		0053	0139	15m, 31h ✓	2h 57 W	3" "				7.03	M0 III							
	α¹ Her	17h 13.7	+14° 25		0145	0151	50s, 100, 200 ✓	1h 47 W	2½ / cloudy				~4.2	M5 Ib-II							
	π Oph	17h 25.5	+4° 14		0157	0220	3m, 7m, 12m ✓	2h 06 W	2				5.84	K2 II							
2415	HR 6097 A	16h 22.7	−33° 09		0238	0248	9½ m ✓	3h 35 W	2" / clear				6.99	A0							
	B				0249	0304	15m ✓	3h 52 W					7.51								
	C				0305	0344	39m ✓	4h 33 W			.6		~9.3								
	HR 6426 AB	17h 17.7	−34° 57		0348	0403	15m ✓	3h 57 W			1.2		~7.0	dK5							~ 50/50 by Area. 1½ hr Lost to cloud.
	HR 8675 A	22h 51.6	−32° 59		0545	0551	50s, 50s, 35s ✓	0h 10 W	cu thickening				4.45	A0							Dec Trail
	B				0558	0646	48m ✓	1h 05 W	2½-4" cu patches				8.64								even poor, no contam (from seeing) 1 hr Lost to cloud
2416	R Dor	4h 37.0	−62° 04		0750	0845	36m, 18m / 10 ✓	2h 40 E	2½-2" clear				~7.5	M8e							
	RZ Ari	2h 54.6	+18° 15		0851	0952	20m, 40m / 20 ✓	0h 10 W	2" → 1.5 pos cirrus				~7.9	M6 III:							
	ρ Per	3h 03.9	+38° 44		0956	1014	25m, 5, 10m / 5 ✓	0h 23 W	2" clear				~5.5	M4 IIb-IIIa							T 10 H 24 W 10
	ε Gem	6h 42.4	+25° 09		1017	1026	1½, 3m, 5s / 5 ✓	3h 00 E	-				4.40	G8 Ib							
2417	HR 5925	15h 55.7	−33° 54	20/21 Aug	0145	0149	1½, 2m ✓	3h 07 W	1.5" clear				5.24	A1							
	5926				0151	0156	2m, 3m ✓	3h 15 W	after Cu clouds				5.67	A0							
	HD 158320 A	17h 28.8	−33° 42		0203	0209	6m / 8m	2h 55 W					6.85	B5							T 12 H 27 W 8
	B				0211	0323	72m ✓	5h 09 W	≥1"		.8		10.08								
	D				0327	0407	40m / 70m	3h 55 W			.8		9.4								
	HR 8148 A	21h 18.5	−26° 24		0421	0431	10m ✓	0h 26 W			1.2		7.33	G5 V							Dec Trail W 20 contam by clouds. W 10
	B				0440	0745	185m ✓	3h 40 W	1.5-2.5 cu		.6		10.98								
2418	HR 1157 A	3h 43 6	−40° 39		0827	0844	17m ✓	1h 43 E	1.5"		1.2		7.61	K0							
	B				0845	0940	55m / 65	0h 48 E	→ 1"		.6		10.19								
	HR 1359 A	4h 18.3	−33° 57		0943	0947	4m ✓	1h 17 E			1.2		6.59	A2							T 11 H 29 W 0
	B				0948	1016	28m / 40m	0h 47 E			.8		9.12								
2419	HR 5952 A	15h 59.7	−40° 20	21/22 Aug	2332	2337	45s ✓	0h 55 W	2" clear		1.2		6.23	A0							T 11 H 33 W 21
	B				2340	0210	150m ✓	3h 30 W	2"-1½"		.6		11.07								
	HR 6645 A	17h 49.7	−30° 34		0220	0227	7m / 6m ✓	1h 55 W	2"		1.2		6.74	A0							
	B				0231	0259	28m ✓	2h 35 W					8.28								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2419 cold	HR 6622A	17h48.9	−53° 37	(21/22) Aug	0309	0313	2m 2m ✓	0h 42m W	2" Clear	3.34	50μ 1.2	120 7.0	5.61	B3 V	NeH	12s	3m 0 14V	IIaO Behind 3 GG 495	14-5	Cy	Dec Trail
	B				0316	0430	74m ✓	4h 00m W	2→3"		.8		9.56								W~35
	HR 8966 A	23h 38.5	−46° 45'		0444	0457	8m ✓	1h 27m E			1.2		6.73	F0 V							Dec Trail.
	B				0457	0519	18m ✓	1h 01m E					7.59								
2420	HR 8999 A	23h 43.3	−26° 23		0614	0621	7m ✓	0h 04m E	2"				6.70	dF5							
	B				0623	0754	91m ✓	1h 30m E	→1.5"		.6		10.40								
	HR 1168 A	3h 44.2	−54° 21		0805	0822	17m ✓	2h 04m E	" Var		1.2		7.42	K0							
	B				0824	0854	30m ✓	0h 30m E	→1.5"		.6		10.14								
	HR 1058 A	3h 27.3	−35° 56		1000	1006	5m ✓	0h 02m E			1.2		6.65	A0							T11 H30 W15
2421	HR 443 A	11h 27.3	−42° 40	22/23 Aug	2337	2337	2m ✓	5h 33m W	2½ Clear				5.12	B9	"	"	"	"	"	"	T12 H32 W6
	B				2340	0012	32m ✓	6h 07m W	2½ Var.				7.85								2.5 air mass!
	HR 5520 A	14h 50.1	−73° 10		0029	0052	6m 10m 10 ✓	3h 25m W	1.5				~7.0	G8 III6				Dec Trail	ISIT on comp only		
	B				0057	0138	35m 30 ✓	4h 10m W	1.5→3" Var				8.5	F8 III				~15% extinction			
	AB				0143	0153	10m ✓	4h 25m W					6.4								
	HR 5756 A	15h 30.6	−20° 02		0209	0216	6m ✓	4h 01m W					6.49	A4							T13
	B				0220	0243	23m use 3	4h 28m W	3→5"		.6		9.62					Dec Trail - WO			
	HR 8956 A	23h 36.0	−31° 58		0303	0332	15m ✓	2h 25m E	3-5→2"		1.2		7.85	K0				Dec Trail - seeing OK			WIO
	A				0403	0432	29m ✓	1h 45m E	1.5-2"				7.85	K0							
	B				0440	0637	117m use 115m 120 ✓	0h 23m W	" Var→4"		.6		10.70					seeing v. poor			WO
2422	HD 34658 A	5h 12.6	−31° 55		0730	0815	1h 40m ✓	3h 30m E	3"		.8		8.57	F2							
	B				0816	0901	45m ✓	2h 50m E	→2"		.8		8.81								
	HR 1504 (A) was 4	4h 40.2	−58° 54		0917	0941	24m ✓	1h 37m E	2"		1.2		7.88	G5 II				Wdpic			T11
	Ent (B)				0943	1007	24m 20 ✓	1h 10m E	2→1"				8.05					Dec Trail			H34
																		E			W16
2423	HR 5756 B	15h 30.6	−20° 01	23/24 Aug	2350	0100	10m ✓	2h 56m W	2" Clear	3.36	.6		9.62					T11 H32 W4 Dec Trail			
	HR 5697 A	15h 20.3	−38° 05		0112	0120	6m ✓	3h 16m W			1.2		6.46	A0:				Dec Tr.			
	HR 5559 A	14h 55.3	−47° 44		0132	0137	4m ✓	4h 09m W					6.04	A2 V				Dec Tr.			
	HR 646 A	17h 17.7	−46° 33		0150	0158	5m ✓	2h 06m W	1.5"				6.32	G8 V				Dec Tr.			
	HR 8202 A	21h 25.8	−42° 38		0214	0218	3½m ✓	1h 43m E	2"				5.97	F2 III							
	B				0223	0300	37m ✓	1h 00m E	1.5"				8.77	F8 V							
	HR 8956 B	23h 36.1	−32° 00		0313	0458	105m use 180	1h 12m E	"		.6		10.70					Dec Tr.			

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2423 contd	HR 9044 A	23h53.4	−27°12	(23/24 Aug)	0510	0519	6m / ✓	1h10E	1.5" clear	3.36	50μ / 1.2	120 / 7.0	6.92	Am	NeA	12s	30m @14V	IIaO	m-s	cy	Dec Tr
	B				0523	0541	15m ✓	0h45E					7.87					Baked 3hr 265C			
	AB				0547	0552	5m ✓	0h35E					6.85								RA Tr 50/50 clear/cirrus
2424	HD 6334 B	01h02.8	−60°13		0638	0702	24m 30 ✓	0h34E	"				8.08	F5							
	HR 436 A	1h29.4	−26°19		0712	0726	14m ✓	0h37E	1.5-1"				7.28	gK4							
	HR 848 A	2h49.6	−35°57		0737	0745	8m ✓	1h38E					6.83	K0							
	HR 1652 B	5h03.7	−35°34		0735	0830	35m	3h07E			.8		9.09								? ~ 20% contam from A tube
	HD 41628 A	6h04.3	−25°02		0841	0914	33m	3h24E	1.5" cirrus		.2		8.58								Dec Tr
	B				0915	0944	29m	2h54E			Decker out		8.59								
	A				0945	1000	15m 20	2h38E			.6		8.58								Dec Tr.
	B				1000	1015	15m 20	02h23E	cirrus		.6		8.59								T11 H30 W6
2425	~~HR 4952 A~~ ~~HD 105565~~	~~13h06.2~~ ~~13h07.7~~	~~−65°17~~ ~~−65°48~~	24/25 Aug	2355	2359	4m ✓	4h23W	2s clear	3.34	1.2 / .6		5.68 ~~7.66~~	W6							T13 H30 W2
	B				0002	0025	23m ✓	4h49W					7.64								
	AB				0036	0042	3m ✓	5h06W					5.47								Dec Tr.
	HR 5900 A	15h53.3	−60°12		0100	0107	4m ✓	2h45W	1.5"				6.20	A3m							Dec Tr.
	B				0119	0158	37m ✓	3h35W			.8		9.08								
	AB				0205	0209	4m ✓	3h46W			1.2		.60								RA Tr
	HR 6236 A	16h49.3	−50°00		0219	0231	12m ✓	3h11W	<1.5"				7.44	g7 A8							Dec no contam
	B				0232	0247	15m ✓	3h28W	1.5"				7.63								" " "
	HD 158320 A	17h28.8	−33°42		0301	0313	12m ✓	3h15W	2-2½				6.85	B5							seeing 1". W18
	HR ~~6760~~ ~~6749~~ 6749 ~~6750~~	18h05.5	−43°21		0335	0338	3m ✓	3h03W	1.5"				6.00	A5V							S ■ of pair ~ no contam N A pair
					0341	0344	3m ✓	3h09W					6.00								
2426	HR 8540 A	22h26.4	−65°00		0413	0415	1m ✓	0h42E					4.50	B8V							Dec Tr.
	B				0423	0506	43m ✓	0h11E					9.36								
	HR 9044 A	23h53.2	−27°08		0516	0526	6m ✓	0h58E					6.92	Ar							Dec Tr.
	HR 377 A	1h15.8	−69°53		0607	0612	2m 3m ✓	0h36E					5.40	F6V							
	D				0618	0708	50m 75	0h31W	1.5 var		.6		9.37								~ 20% contam.
	CD				0715	0744	29m ✓	0h00			1.2		~8.85								Dec Tr 3450 exposure
	HR 1359 B	4h18.3	−33°58		0752	0827	35m ✓	2h20E			.8		9.12								
2427	29 Per	3h16.8	+50°09		0855	0903	1m 2m 4m ✓	0h44E			1.2		5.09	B3V							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP KIND	COMP EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
~~2427~~	HR 1029	3h 24.2	+49° 03	(Aug 25 Aug)	0909	0923	14m ✓	0h 30E	2" clear	3 34	50µ / 1.2	120 / 2.0	6 00	B7 V	NeA	12s	30 14V	IIaO Baked 3d W 65%	m-s	Cy	
	o Per	3h 42.8	+32° 13		0933	0935	15s 30 dec ✓	0h 37E	2"→1.5				3.88	B1 III							
	18 Tau	3h 43.9	+24° 48		0944	0951	1m 25s ✓	0h 22E	1.5				5.56	B8 V							
	HD23886	3h 42.2	+24° 12		0958	~~0~~ 017	15m ✓	0h 00	"				7.9	A5 V							T14 H28 W16
2428	-38° 11663A	17h 12.5	-38° 13	25/26 Aug	2342	2352	9m ✓	0h 13w	1.5 clear				7.36	F5	-	-		-	-		T13 H33 W11
	B				2353	0037	44m 50	0h 58w	~1.5"		.8		9.47								
	-57° 8803A	17h 56.0	-57° 39		0044	0113	29m 60	0h 53w			-		8.9	G5							
	B				0115	0230	75m ✓	2h 09w	~1"		.6		10.0								no contam
	HR 7764A	20h 19.3	-29° 12		0246	0250	7m ✓	0h 04w			T.2		6 4	A2							? Vignetted by tone arm
	B				0254	0341	47m 80m	0h 56w	2.0"		.6		~9.9								no contam
	A				0343	0347	9m 6	1h 02w			T.2		6.4								Clouds
	C				0348	0415	27m 30	1h 30w			-		~8.5								
	HR 8720A	22h 54.8	-32° 39		0427	0432	15s 12s 2m ✓	0h 44E					5.12	G3							
	B				0445	0615	90m ✓	0h 55w	1° 25"		.6		9.53								? 3= 5% contam. Dec Tr. W20
2429	-60° 162A	1h 54.8	-60° 20		0725	0739	12m ✓	0h 42E	2"→1.5"		T.2		7.5	F4V							? Dec Tr ? no contam
	B				0742	0758	14m 18	0h 23E	"				7.7	F5 V							
	-28° 2703A	6h 04.5	-28° 38		0808	0858	50m ✓	3h 34E	2½" → 4"		.8		8.8	F2							W26
	B				0859	0959	60m ✓	2h 31E	2½" (→ 5")		"		9.06								T9 H38 W24
2430	HR 5189 B	13h 47.8	-35° 35	26/27 Aug	0008	0115	67m ✓	1h 07 W	2" clear	LT 3434	100µ / .8	120 / 2.0	11.41		Neh	1s		IIaD	m-s		T11 H33 W20 s
	A				0128	0130	100s ✓	5h 22w	3"				7.13								~~2s 2m 2s~~
	HR 6426 C	17h 17.5	-34° 58		0141	0258	77m 70	3h 20w	1"→0.5"!				11.83								+1 - Dec dgtd 1" resp.
	HR 8148 B	21h 18.6	-26° 24		0311	0352	40m ✓	0h 12w	1" (2" Dec)				10.48								+3 Dec Tr. Contam. RHT: "Contam" but not measurable on 21423
	HR 8202 B	21h 25.8	-42° 30		0409	0415	5½m ✓	0h 27w	1"→2" w.				8.77								
2431	HR 8635 B	22h 41.6	-47° 18	Dec reset	0445	0646	12m ✓	1h 45 W	~~2"~~ →1"				12.25	-5							poss no contam.
	HR 848 B	2h 49.5	-35° 59		0711	0751	40m ✓	1h 20E	1.5"				11.09	-3							no contam
	HR 1058 B	3h 27.1	-35° 57		0805	0847	42m ✓	1h 01E	"				11.01	-1 +1							Dec Tr. no contam T1C H33 W24
	HR 2158 B	6h 04.1	-45° 06		0912	0936	24m ✓	2h 52E	2"→3"				10.25	+3 +4							3 3rd contam
2432	HR 4636 B	12h 09.6	-45° 25	27/28	2350	0052	62m ✓	6h 25w	2"-3" clear				11.22	+5							T10 H32 W16 2 3rd contam (~~2nd~~)
	A			Aug	0054	0057	3m 4½	6h 30w	3.4"				6.7	+3							
	-5° 13567 A	15h 33.4	-38° 05		0111	0135	24m ✓	0h 16 E	2"-3				~10.5	KO +1							3 Dec Tr
	B				0140	0203	23m 28?	0h 12w	2½"				~10.4	-1							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
(2432 card)	-38° 8557 HB	19h 33.4	-38° 05	(27/28 Aug)	0208	0219	11m ✓	0h 27w	2" clear	1T 334	10μ / 0.18	120 / 7.0	-9.8		NeA	1S		IIaD	m-S	Cyp	50/50 wisps
2433	18 Sco	16h 14.5	−8° 18		0300	0304	8s,16,32s / 20 ✓	4h 32w					5.50	G2 Va							
	HR 6806	18h 08.9	+38° 28		0320	0330	60s, 120s, 240s / 120 ✓	3h 03w					7.27	K2 V							
	HR 7495	19h 39.9	+45° 30.		0340	0344	25s, 50s, 100s ✓	1h 45w					5.46	F5 II							
2434	α Cyg	20h 40.5	+45° 16		0410	0414	1s, 2s, 4s ✓	1h 15w					1.17	A2 Ia							
	β Aql	19h 54.0	+6° 26		0427	0429	8s, 16s ✓	2h 16w					4.57	G8 III							
	60 Sgr	19h 57.5	−26° 13		0438	0440	3s, 6s, 12s / 12 ✓	2h 25w					4.83	G6 III Ba2							
2435	61 Cyg A	21h 05.7	+38° 41		0508	0512	30s, 60s, 100s ✓	1h 50w					6.39	K5 V							
	61 Cyg B	21h 05.6	+38° 40		0520	0533	2m, 4m, 6m ✓	2h 10w					7.40	K7 V							
	HR 8631	22h 51.7	+14° 28		0545	0548	20s, 40s, 80s ✓	0h 50w					-6.8	G3 V							
2436	HR 436 B	1h 29.5	−26° 16		0650	0744	54m ✓	0h 02E	1"				11.48								* not really seen during transit.
	HR 8602 B	22h 36.1	−46° 37		0758	0820	22m ✓	3h 28w	2"				-10.5								no spectrum on trans save halo.
	HR 2546 B	6h 49.3	−45° 21		0833	1001	88m ✓	3h 06E	2"-3"				12.04								no caution. T8 H32 W18
2437	Jup III	12h 42.9 (12m offset)	− 3° 29	28/29 Aug	2347	0030	27m, 15m / 60 ✓	5h 36w	3"-4" clear / 1-5"		50μ / 1.2		-6.5	G2 V	Neon	12S	30m, Ø14"	IIaO		Detail studies	T9 H29 W28
	τ Sgr	18h 53.8	−26° 17		0055	0056	3.6, 10s ✓	0h 13E					1.9	B2.5 V							W/25
	ν Oph	17h 57.7	− 9° 41		0113	0115	25s, 50s, 100s ✓	1h 02w					4.34	K0 III CN-1							
	κ Lyr	18h 19.1	+36° 08		0127	0140	2m, 3.6m, 7m ✓	1h 06w					-5.5	K2 III CN 1							
	ζ² Lyr	18h 53.6	+36° 57		0149	0154	5m ✓	0h 46w					-6.3	M4 II							
2438	HR 7495	19h 40.0	+45° 33		0210	0242	2m, 4m, 7m ✓	0h 47w					5.46	F5 II							
	α Cyg	20h 40.5	+45° 16		0250	0252	2s, 4s, 8s ✓	0h 03E					1.17	A2 Ia							
	61 Cyg B	21h 05.8	+38° 43		0304	0350	15m, 30m / 30 ✓	0h 30w					7.40	K7 V							
	β Aql	19h 54.1	+ 6° 31		0405	0408	25s, 50s, 100s ✓	2h 00w					4.57	G8 IV							
	HR 7475	19h 38.4	+16° 37		0422	0449	27m / 60 ✓	2h 58w					~7.8	K4 Ib							
2439	60 Sgr	19h 57.6	−26° 14		0509	0519	1m, 2m, 5m ✓	3h 07w					5.74	G6 III Ba2							
	HR 7845	20h 31.3	− 9° 56		0536	0551	2m, 4m, 8 ✓	3h 06w					6.34	G2.5 III							
	54 Psc	0h 38.1	+21° 08		0646	0711	3m, 7m, 14m ✓	0h 20w					6.70	K0 V							W20
	ε Eri	3h 42.1	− 9° 50		0720	0724	25s, 50s, 100s ✓	2h 34E					4.47	K0 III							
2440	HR 2162 A	6h 04.3	−48° 26		0750	0820	30m / 60	3h 55E	~2h-3h clear?				7.92	G5							prob no caution, but seeing poor. Sect T1 seemed to be +11 but T8 was best. H30 W28
	B				0825	0856	31m / 90	3h 23E	1.5-3" cloud?				8.38								SC/SE trans
	AB				0907	0924	17m ✓	3h 58E	" cloud				~								~ stopped by cloud
	B				0930	0937	7m		" — stopped												

NUMBER	OBJECT	R.A.	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2441	HR 8631	22h35.6	+14° 26	30/31	0501	0542	7m 12s 22s ✓	0h 57m W	5" variable	3.34	50μ / 1.2	120 / 7.0	6.8	G3 V	NeA	12s	30m Dig ✓	IIaO	m-s	Cy	T3 H37 W22
	β Peg	23h0.27	+28° 02	Aug	0558	0607	1h 2m 15s ✓	0h 58m W					4.22	M2.5 II-III				Ilford 3hp 2.65μ			
	θ Cet	1 22.8	−8° 17		0616	0624	1m 2s 4s ✓	1h 05m E					4.67	K0 III-IV							
	γ Peg	0h 11.8	+15° 05		0633	0635	8s 14s 28s ✓	0h 16m W					2.6 C	B2 IV							
2442	19 Tau	3h 43.5	+24° 26		0700	0708	1m 2s 4m ✓	2h 45m E	4"				4.18	B6 IV			"				
	g Tau	3 45.7	+24° 05		0718	0720	10s 26s 46s ✓	2h 30m E					2.77	B7 III							
	HR 2836	4h 22.7	+14° 42		0745	0853	45m 23m ✓	1h 35m E	3" clear				8.22	G1 V							
2443	HR 2576 A	6h 49.4	−45° 22		0906	1002	56m ✓	2h 53m E	2-3"				B 1.09	K0			4s 2441				T2 H69 W16
					UT / LST			QUALITY					B				Abs'n				
2444	R CEN	14h15.2m	−59°49'	31 AUG 1 SEPT	1:05 19:03	2:08 20:06	61m/52m ✓	wk HK	2"/CLEAR	3.34	100/0.8	120/7.0 ✓	9.0	M8e-M10e	NeA	10s	10	IIa-O	M-P-2	Crw	T=6°C H=59%
	RR SCO	16h 55.4m	−30°33'		2:25 20:23	2:45 20:43	20m/17m ✓	sl. string					<7.8	M4II-M5IIIe			12				
	RT SGR	20h 16.5m	−39°10'		2:52 20:49	3:24 21:22	30m/29m ✓✓						✓8.5	M5e-M7e			14				
	R IND	22h 34.7m	−67°24'		3:43 21:43	6 31 00:30	168m/161m ✓	sl. wk			100/0.6		>10.5	M8e-M10e			16				
	S SCL	0h 14.4m	−32°09'		6:40 0:38	8:56 2:56	136m/134m ✓✓						✓10.5	M5e-M8e			18				
	T COL	5h 18.6m	−33°44'		9:04 3:03	10:08 4:02	59m/105m ✓						<10.2	M4e-M6			20				T=7°C H=<20%
2445	R HYA	13h 28.6m	−23°11'	SEPT 1-2	23:53 17:55	0:57 18:59	64m/64m ✓✓	wk HK	2"/CLEAR	3.34	100/0.8	120/7.0 ✓	8.8?	M6e-M8e	NeA	10s	10	IIa-O	M-P-2	Crw	
	W HYA	13h 47.9m	−28°16'		1:04 19:06	1:35 19:37	30m/46m ✓	wk					>8.5?	M8e-M9e			12				T=8°C H=53%
	T NOR	15h 42.6m	−54°56'		1:51 19:53	3:58 22:00	127m/100m ✓				100/0.6		✓10.0	M3e-M6			14				
	RR SCO	16h 55.4m	−30°33'		4:08 22:10	4:25 22:27	17m/15m ✓✓				100/0.8		✓7.5	M4II-M5IIIe			16				
	RR SGR	19h 54.8m	−29°15'		4:55 22:57	7:41 1:43	166m/156m ✓	sl wk			100/0.6		>10.5	M5e-M6e			18				
	R PHE	23h 55.5m	−49°54'		7:52 1:55	8:57 2:57	62m/62m ✓	wk HK					✓9.5	M3e			20				
	W PUP	7h 45.3m	−42°09'		9:20 3:23	10:04 4:07	44m/88m ✓	wk (RIGHT STRIKE?)					>9.9?	M3e			22				T=5°C H=50%
2446	R HYA	13h 28.6m	−23°11'	SEPT 2-3	0:16 18:22	0:22 18:28	6m/6m ✓	sl. stu	2"/CLEAR	3.34	100/0.8	120/7.0	<8.8	M6e-M8e(s)	NeA	1s	-5	IIa-O	M-S	Crw	T=10°C H=45%
	W HYA	13h 47.9m	−28°16'		0:28 18:33	0:39 18:44	11m/11m ✓	sl. stu					<9.5	M3e-M4e(SR)			-4				
	RU HYA	14h 10.4m	−28°48'		0:45 18:50	01:35 19:40	50m/49m ✓						✓11.1	M6e			-3				
	R CEN	14h 15.2m	−59°49'		1:51 19:56	1:58 20:03	7m/7m ✓	sl. wk					>9.0	M4e-M7IIIe			-2				
	T NOR	15h 42.6m	−54°56'		2:05 20:10	2:30 20:35	20m/15m ✓						✓10.0	M3e-M6			-1				DOUBLE!
	RU SCO	17h 4.0m	−43°45'		2:49 20:55	3:52 21:58	63m/53m ✓						✓11.4	M7III-M8e			+1				
	RR SGR	19h 54.8m	−29°15'		3:56 22:02	4:30 22:36	34m/34m ✓						>10.5	M5e-M6e	NeA	1s	+3				
	RT SGR	20h 16.5m	−39°10'		4:38 22:44	4:45 22:51	2m 4m/3½m ✓	4m sl wk HeK					✓8.5	M5e-M7e			+4,+5				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1981	DEC 1981	DATE U.T 1981	UT EXP / LST BEGIN	UT EXP / LST END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	~~GALIB~~ POS'N	EMUL	DEV	OBS	REMARKS
2447	S MIC	$21^h25^m.6$	$-29°56'$	SEPT 2-3	5:11	5:52	$41^m/40^m$	✓	2"/CLEAR	3-37	100/0.8	120/7.0	✓11.2	M3e			-5	IIIa-D	M-5	CRW	
	HD 207076	$21^h45^m.6$	$-2°18'$		6:02 / 0:07	6:17 / 0:23	$2½/4½^m$	$2½^m$ ✓✓					✓8.0	M7III			-3,-2,-1				
	S PsA	$22^h02^m.7$	$-28°09'$		6:22 / 0:28	6:57 / 1:03	$6^m/35^m$	✓					✓11.0	M3e-M5III			+1				
	R AHE	$23^h55^m.5$	$-49°54'$		7:06 / 1:13	7:15 / 1:22	$9^m/8½^m$	✓ sl wk H&K					✓9.5	M3e			+2				
	S SCL	$0^h14^m.4$	$-32°09'$		7:19 / 1:26	7:44 / 1:51	$25^m/21^m$	✓✓					✓10.5	M3e-M5e			+3				
	T SCL	$0^h28^m.3$	$-38°01'$		7:49 / 1:56	8:18 / 2:25	$29^m/25^m$	✓ sl wk H&K					✓10.7	M3	NeA	1^s	+4				
2448	W ERI	$4^h10^m.7$	$-25°11'$		8:46 / 2:53	9:09 / 3:16	$23^m/21^m$	✓✓					✓10.5	M7e			-5				
	45 RZ ARI	$2^h54^m.7$	$+18°16'$		9:17 / 3:24	9:23 / 3:30	$1½^m/3^m/80^s$	$1½^m$ ✓					✓7.5	M4III			-4,-3				
	DG ERI	$4^h19^m.8$	$-16°52'$		9:30 / 3:37	9:35 / 3:42	$5^m/4^m$	✓ sl wk					>8.7	M4III	NeA	1^s	-1				
	T COL	$5^h18^m.6$	$-33°44'$		9:41 / 3:48	10:04 / 4:11	$23^m/21^m$	✓✓ sl					<10.5	M4e-M6			+1				T=10°C H=31%
2449	W CEN	$11^h54^m.1$	$-59°09'$	SEPT 3-4	23:45 / 17:54	0:56 / 19:05	$60^m/60^m$	BREAK TAKEN ✓✓	1"/CLEAR	3.34	100/0.8	120/7.0	✓11.3	M3e-M8III			-5	IIIa-D	M-5	CRW	T=13°C H=32%
	R CEN	$14^h15^m.2$	$-59°49'$		1:04 / 19:14	1:15 / 19:25	$11^m/8½^m$	✓ sl stw					✓9.3	M4e-M7IIIe			-4				
	S LIB	$15^h20^m.2$	$-20°19'$		1:18 / 19:28	1:58 / 20:08	$35^m/32^m$	with H&K DRING!					>10.8	M2e			-3				
	RR SCO	$16^h55^m.4$	$-30°33'$		2:06 / 20:15	2:10 / 20:19	$75^s/75^s$	✓✓ 75^s					✓7.5	M4eII III-M8IIIe			-2,-1				
	RU SCR	$19^h57^m.4$	$-41°54'$		2:28 / 20:38	4:00 / 22:10	$92^m/82^m$	DRING! ✓✓					✓12.0	M3e-M6e			+1				
	T CRU	$22^h29^m.4$	$-37°41'$		4:05 / 22:15	4:58 / 23:08	$53^m/52^m$	✓ wk H&K					✓11.5	M4IIIe-M2IIIe			+3				
	R IND	$22^h34^m.7$	$-67°24'$		5:12 / 23:22	5:58 / 0:09	$46^m/46^m$	✓ wk H&K					✓11.3	M2e-M4IIIe	NeA	1^s	+5				
2450	HD 207076	$21^h45^m.6$	$-2°18'$		6:33 / 0:42	6:37 / 0:46	$2½^m/2½^m$	sl stw					<8.0	M7III			-5				
	O CET	$2^h18^m.3$	$-3°04'$		6:46 / 0:56	6:49 / 0:59	2 SEPT TR / 12^s	6 TRAILS wk					✓5.5	M5e-M7e			-4,-3,-2				
	T ERI	$3^h54^m.4$	$-24°05'$		6:56 / 1:07	8:27 / 2:38	$91^m/88^m$	sl stw					<12.0	M3e-M5e			-1				
	RV PUP	$6^h41^m.9$	$-42°21'$		8:33 / 2:44	9:23 / 3:34	$50^m/49^m$	wk					>11.3	M1e			+1				
	AS PUP	$8^h09^m.0$	$-38°07'$		9:28 / 3:39	9:50 / 4:01	$22^m/30^m$	✓✓					✓10.5	M7e			+2				
	45 RZ ARI	$2^h57^m.7$	$+18°16'$		9:59 / 4:09	10:03 / 4:13	$1½^m/1½^m$	sl stw					<7.5	M6III	NeA	1^s	+4,+5				T=12°C H=30%
2451	R HYA	$13^h28^m.6$	$-23°11'$	SEPT 4-5	0:09 / 18:22	0:13 / 18:26	$4^m/4½^m$	✓✓	1"/CLEAR	3.34	100/0.8	120/7.0	✓8.4	M6e-M8e			-5	IIIa-D	M-5	CRW	
	T CEN	$13^h40^m.6$	$-33°30'$		0:19 / 18:32	0:24 / 18:37	$5^m/5^m$	✓✓					✓8.6	K0IIIe-M4IIIe (sp)			-4				
	W HYA	$13^h47^m.9$	$-28°16'$		0:30 / 18:43	0:37 / 18:51	$7^m/7^m$	✓ very sl stw					✓9.0	M3e-M4e (sp)			-3				
	R CEN	$14^h15^m.2$	$-59°49'$		0:43 / 18:57	0:51 / 19:05	$8½^m/8½^m$	✓✓					✓9.3	M4e-M7IIIe			-2				
	RR SCO	$16^h55^m.4$	$-30°33'$		0:58 / 19:10	0:59 / 19:11	$75^s/75^s$	✓✓					✓7.5	M4eII-III-M8IIIe			-1				
	R NOR	$15^h34^m.6$	$-49°27'$		1:08 / 19:22	3:17 / 21:32	$114^m/111^m$	BREAK TAKEN ✓✓					✓12.2	M3e-M6IIIe			+1				
	T OCT	$21^h10^m.9$	$-82°11'$		3:25 / 21:59	5:54 / 0:08	$149^m/152^m$	wk					>12.5	M2e-M4IIIe	NeA	1^s	+3				

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 358

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1981	DEC. 1981	DATE U.T. 1981	U.T. EXP. / LST BEGIN	END	TOTAL / CORR.	~~H.A. END~~ QUALITY	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP KIND	COMP EXP	CALIB. POS'N	EMUL.	DEV.	OBS.	REMARKS
2452	HD 207076	21h45.6m	-2°18'	SEPT 4-5	6:24	6:26	2m/2m	VV	1"/CLEAR	3.34	100/0.8	120/7.0	7.8	M7III			-5	IIa-D	M-S	Crw	
	O CET	2h18.3m	-3°04'		0:38	0:40															
					6:32	6:34	15s	15s sta.					5.5	M5e-M7e			-4,-3				
					0:46	0:48	24 SET TRAILS	24 SET VV													
	45 RZ ARI	21h54.7m	+18°16'		6:40	6:42	75s/1½m	✓ very sl sta					<7.3	M6III			-1				
					0:54	0:56															
	T ERI	3h54.4m	-24°05'		6:55	8:06	71m/65m	VV					11.7	M3e-M5e			+1				
					1:10	2:21															
	RV PUP	6h44.9m	-42°21'		8:10	9:30	80m/70m	wk					>11.7	M1e	NeA	1s	+3				
					2:25	3:45															
	W PUP	7h45.3m	-42°09'		9:32	10:02	30m/31m	✓ wk HeK					10.8	M3e			+5				T=13°C H=38%
					3:46	4:16															
2453	W CEN	11h54.1m	-59°09'	SEPT 5-6	23:52	0:42	50m/60m	✓ sl wk	1"/CLEAR	3.34	100/0.8	120/7.0	11.3	M3e-M5IIIe			-5	IIa-D	M-S	Crw	T=14°C H=30%
					18:10	19:00															
	SUB	15h20.2m	-20°19'		0:40	1:45	59m/42m	✓ stu OK in blue					11.1	M2e			-3				
					19:04	20:03															
	RX MIC	20h53.3m	-27°49'		2:13	5:42	210m/185m	VV			100/0.6		13.2?	M?			-1				
					20:31	0:01															
	R PHE	23h55.5m	-49°54'		5:50	6:11	8½m/11m	✓ BOTH FINE			100/0.42 100/0.42		9.8	M3e			+1,+2				
					0:08	0:29	12m														
	HD 207076	21h45.6m	-2°18'		6:18	6:20	2m/2m	VV			100/0.8		7.8	M7III	NeA	1s	+4				
					0:36	0:38															
	O CET	2h18.3m	-3°04'		6:26	6:27	25 SET TRAILS	✓					>5.5	M5e-M7e			+5				
					0:44	0:45	12s	sl wk													
2454	T SCL	0h28.3m	-38°01'		6:52	7:32	40m/33m	✓ sl sta					11.0	M3e			-5				
					1:10	1:50															
	RS PHE	1h13.6m	-56°50'		7:42	9:44	119m/132m	✓ RIGHT FINE?			100/0.6		12.8	M2e			-3				
					2:00	3:59															
	T COL	5h18.6m	-33°44'		0:45	10:02	17m/16m	✓ sl sta			100/0.8		10.2	M4e-M6e	NeA	1s	-1				T=13°C H=22%
					4:07	4:19															
2455	RT CEN	13h46.9m	-36°46'	SEPT 6-7	23:35	1:30	115m/112m	✓	1"/CLEAR	3.34	100/0.8	120/7.0	12.2	M6IIIe			-5	IIa-D	M-S	Crw	T=12°C H=34%
					17:39	19:51															
	RS SCO	16h54.2m	-45°04'		1:39	4:59	200m/199m	✓ OUT OF FOCUS?			100/0.6		>13.2	M5e-M8e			-3				
					20:01	23:21															
	R BA	22h46.9m	-29°42'		5:11	6:44	90m/83m	✓			100/0.8		12.0	M4e-M3IIIe			-1				
					23:33	1:03															
	HD 207076	21h45.6m	-2°18'		6:51	6:53	2m/2m	VV					7.8	M7III			+1				
					1:13	1:15															
	45 RZ ARI	21h54.7m	+18°16'		7:09	7:11	1m/1m	✓✓ steady					7.1	M6III			+2				
					1:31	1:33															
	R HOR	2h55.2m	-49°58'		7:20	9:42	142m/157m	VV			100/0.6		13.0	M5-M7III-III			+3				
					1:42	4:05															
	R CAR	9h31.7m	-62°42'		9:46	10:02	16m/16m	VV			100/0.8		8.9	M4e-M8e	NeA	1s	+4				T=11°C H=32%
					4:09	4:25															
2456	RS SCO	16h54.2m	-45°04'	SEPT 7-8	0:37	4:52	262m/260m	✓✓ yellow!	2-3"/CLEAR	3.34	100/0.6	120/7.0	13.5	M5e-M8e			-5	IIa-D	M-S	Crw	T=8°C H=48% W=35!
					19:03	23:25															
2457	RT SGR	20h16.5m	-39°10'		5:32	5:36	4¼m/3½m	VV			100/0.8		8.5	M5e-M7e			-5				
					23:57	0:01															
	HD 207076	21h45.6m	-2°18'		5:43	5:45	2m/2m	VV					7.8	M7III			-3				
					0:09	0:11															
	U SCL	1h10.6m	-30°13'		6:29	9:05	156m/140m	VV			100/0.6		12.9	M5e			-1				
					0:55	3:32															
	T SCL	0h28.3m	-38°01'		9:12	9:47	35m/35m	✓ steady			100/0.8		10.9	M3e	NeA	1s	+1				
					3:39	4:14															
	T COL	5h18.6m	-33°44'		9:51	10:03	12m/13m	VV					10.0	M4e-M6e			+3				T=6°C H=40%
					4:18	4:30															

FOCUS GOOD LATE SEEING LIGHT LEAK

FOCUS STILL A PROBLEM!

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE _____

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
										3/											
										3/											
										3/											

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1981	DEC 1981	DATE U.T.	U.T. EXP / LST BEGIN	END	TOTAL / CORR	~~H.A. END~~ QUALITY	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB Pos'N	EMUL	DEV	OBS	REMARKS
2458	RU HYA	$14^h10.^m4$	$-28°48'$	SEPT 8-9	0:25 / 18:54	0:45 / 19.14	20m / 178m	(ABORTED)	2"/CLEAR	3.44	100/0.6	120/7.0	11.1	M6e			10	IIa-O BAKED	MWP-2	Crw	T=7°C H=42% W=25
	W HYA	$13^h47.^m9$	$-28°16'$		0:46 / 19:16	1:33 / 20:03	47m / 41m	√√					9.3	M8e-M9e(SR)			12				
	RU SCO	$17^h41.^m0$	$-43°45'$		1:36 / 20:05	4:55 / 23:25	199m / 194m	√√					11.4	MIII-IIIe			14				
	HD 267276	$21^h45.^m6$	$-2°18'$		5:12 / 23:42	5:22 / 23:52	10m / 9m	√√			100/0.8		7.8	M7III			16				
	57 PSC	$0^h45.^m5$	$+15°22'$		5:31 / 0:00	5:37 / 0:07	6m / 6m	√√					7.1	MIIIII	NeA	5s	18				SPOT SENSITOMETER 17m @ 14 VOLTS
2459	S PsA	$22^h02.^m7$	$-28°09'$		6:01 / 0:31	8:09 / 2:39	128m / 127m	√			100/0.6		11.0	M3e-MSIIIe			10				
	45 AQR AR1	$21^h59.^m7$	$+18°16'$		8:24 / 2:54	8:29 / 2:59	5½m / 5m	√√			100/0.8		7.1	M6III			12				
	O CET	$2^h18.^m3$	$-3°04'$		8:46 / 3:11	8:45 / 3:16	1m / 1½m	√ HAK			100/0.8		5.6	M5e-M6e			14 & 18				
	W ERI	$4^h10.^m7$	$-25°11'$		8:50 / 3:20	10:05 / 4:36	2m / 75m / 75m	√√			100/0.6		10.5	M7e			20				T=6°C H=42% LV=20
2460	RU HYA	$14^h10.^m4$	$-28°48'$	SEPT 9-10	23:50 / 18:23	6:50 / 20:23	120m / 150m	√√	2"/CLEAR	3.44	100/0.6	120/7.0	11.1	M6e			10	IIa-O BAKED	MWP-2	Crw	T=6°C H=42%
	S MIC	$21^h25.^m6$	$-29°56'$		1:55 / 20:28	7:56 / 23:30	181m / 146m	√ sl streng	2"/ THIN CLOUD				11.1	M3e			12				THIN CLOUD!
	V 450 AQL	$19^h32.^m8$	$+5°25'$		5:09 / 23:43	5:32 / 0:06	23m / 21m	sl wk			100/0.8		>8.4	MS-MS-S III	NeA	5s	14				
2461	T SCL	$0^h28.^m3$	$-38°01'$		5:53 / 0:30	8:55 / 3:30	182m / 121m	√√	/ CLOUD ALL OVER		100/0.6		10.9	M3e			10				SPOT SENSITOMETER 17m @ 14 VOLTS
	R CAR	$9^h31.^m7$	$-62°42'$		9:06 / 3:40	10:05 / 4:39	59m / 58m	√ very sl wk			100/0.6		9.9	M4e-M8e	NeA	5s	12				T=10° H=30%
2462	R CEN	$14^h15.^m2$	$-59°29'$	SEPT. 10-11	0:00:05 / 18:37:12	1:06 / 19:43	61m / 40m	√√	2"/MOSTLY CLEAR	3.44	100/0.8	120/7.0	9.5	M4e-M7IIIe			10	IIa-O BAKED	MWP-2	Crw	T=11° H=36°
	RR SCO	$16^h55.^m4$	$-30°33'$		1:16 / 19:53	1:28 / 20:05	12m / 8m	√√	/ VERY HIGH CIRRUS				7.8	M4e-III-MSIIIe			12				
	RT SGR	$20^h16.^m5$	$-39°10'$		1:37 / 20:14	1:59 / 20:36	22m / 15m	√√			100/0.8		8.5	M5e-M7e			14				
	RR SGR	$19^h54.^m8$	$-29°15'$		2:07 / 20:45	3:31 / 22:17	92m / 88m	√√			100/0.6		10.8	M5e-M6e			16				
	T GRU	$22^h24.^m4$	$-37°41'$		8:43 / 22:21	6:43 / 01:21	180m / 201m	√ sl wk					11.5	MIIIe-MIIIe	NeA	5s	18				T=11°C H=34%
		(1950)			UT																
2463	BS 8869	$23^h18.^m0\ 2^s$	$-0°41'55''$	OCT. 22	3:01:30	3:07:00	15/30/46/62/77		2"	3.34	100/.8	120/7.0	4.96	dF5			3,8,9,C	IIa-O	MWP-2	IK	
	BS 8968	$23^h38.^m51$	$-14°20'$		3:10:00	3:17:30	15/31/46/62/77		2"		"		5.24	A5			11,13,15,16,17				
	BS 8982	$23^h40.^m8$	$-17°55'$		3:22	3:27	16/31/47/63/77		2½"		"		5.62	GOIb			11,12,14,15,16				
	BS 9062	$23^h56.^m7$	$-64°24'$		3:33	3:38	31/63/104		3"		"		5.04	A2	NeA	10s	2,4,5,6,7				
2464	BS 9084	$0^h00.^m7$	$-77°10'$		4:19	4:27	61/134		2½"		"		6.04	K2III			5, 6"				
	BS 33	$0^h10.^m3$	$-15°34'$		4:48	4:52	16/31/62		2½"		"		5.37	FOV							
	BS 377A	$1^h15.^m2$	$-68°58'$		5:00	5:06	41/82		2½'→3"		"		5.33	F6V							
	BS 377B	$1^h15.^m2$	$-68°58'$		5:07	5:08:30	16		3'→4"		"		8.5?	?							
	BS 434	$1^h29.^m3$	$+06°03'$		5:16	5:18	15/30/60		2½"→3"		"		6.23	K4III							
	BS 493 ?	$1^h41.^m5$	$+20°11'$		5:23	5:25	16/32/64		3"		"		6.08	K1V	N.A	10s					T=13°C 12H=37%

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A. 1982·0	DEC. 1982·0	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2465	BS 8060			OCT 22/73			$15^s.9$ /		$2\frac{1}{2}$" / CLEAR	3·34	100 μm / 8 mm	120 ℓ/mm 7·0	4·98		NeA	10^s	2m @ 22V ε BLUE	IIa-O	MWP-2	IKS	T = 15°C, H = 35%
							$31^s.8$ /														
							$47^s.6$ /														
							5* /														
							10* /														
							15* /														
							20* /														
							25* /														
	BS 8573		-10° 46′				$15^s.3$ /						4·76		NeA	10^s	2m @ 22V ε BLUE	IIa-O	MWP-2	IKS	T = 13°C, H = 33%
							$30^s.6$ /														
							$61^s.2$ /														
							10* /														
							20* /														
							30* /														
							40* /														
							50* /														
2466	BS 0033				2^h35	2^h40	2** /								NeA	10^s	2m @ 22V ε BLUE	IIa-O	MWP-2	IKS	
						↓	4** /														
							8** /														
	BS 0045				2^h50		10** /														
							20** /														
						3^h11	40** /														
	BS 0105				3^h20		10** /														
							20** /														
						3^h45	40** /														
	BS 0125				3^h52		1** /														
							2** /														
	~~BS~~					3^h55	3** /														

* = PASSES WITH SET MOTION ** = PASSES WITH GUIDE PADDLE

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER LC'	OBJECT	R.A. 1982.0	DEC 1982.0	DATE U.T	UT EXP BEGIN	UT EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2466	BS0194			OCT 22/83	4h01		1*/		2½"/CLEAR	3.34	100µm/8mm	120/70			NeA	10s	2hr 27f & BLUE	IIa-O	MWP 2	IIIS	T=13°C, RH=32%
							8*/														
						4h10	16*/														
2467	BS0708	2h25.1	-12°22'	OCT 22/83	5h18		1*/		2½"/CLEAR	3.34	100/8	120/70	4.85		NeA	10s	2hr 27f & BLUE	IIa-O	MWP 2	IIIS	T=12°C, RH=33%
							2*/														
	BS0715	2h22.8	-73°44			5h20	4*/														
					5h28		1*/						6.09								
							3*/														
						5h40	6*/														
	BS0740	2h31.2	-15°20		5h48		1*/						5.19								
						5h51	3*/														
							6*/														
	BS0749	2h33.1	-28°19		5h59		1*/						4.84								
							2*/														
						6h01	4*/														
	BS0753	2h35.1	+06°49		6h09		18*/						6.79								
							20*/														
						6h28	42*/														T=12°, RH=36%
2468	BS1483	4h38.1	-12°09		7h21		1*/		2½"/CLEAR	3.34	100/8	120/70	5.07		NeA	10s	2hr 27f & BLUE	IIa-O	MWP 2	IIIS	
							3*/														
						7h24	6*/														
	BS1596	4h51.5	+14°13		7h3x		3*/						6.43								
							5*/														
						7h38	11*/														
	BS1611	4h59.1	-12°34		7h45		1*/						5.05								
							3*/														
						7h48	6*/														
	BS1617	5h00.6	-07°12		7h52		1*/						4.66								
							2*/														
						7h54	4*/														

* = PASSES WITH GUIDE PADDLE

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 362

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1980	DEC.	DATE U.T. 1981	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2480	ALLEN 937C	22 38 46	-56 46 12	NOV 13,14	02 59m	04 13m	50m / 74m	4 00W	2" / clear	3.34	100 / 06	120 / 7.0	11.8?	–	–	–	–	IIIa-J	M-S 15m 62°F	LEVATO CLARIA	
	" 146D	22 37 42	-02 36 44	"	05:16	05:16	30s / 30s	1 28E	"	"	"	"	~7.2	–	–	–	–	"		"	
	" " D	"	"	"	05:17	05 18	1m / 1m	1 29E	"	"	"	"		–	–	–	–	"	"	"	"
	" " C	"	"	"	05:28	05:41.5	13m5 / 13s	1:05E	"	"	"	"	~10.3	–	–		–	"	"	"	AB
	" 142C	05 38 55	-20 26 33	"	06:08	06 45	32m / 37	0.04E	"	"	"	"	~11.3	–	–	–	–	"	"	"	
	" 195C	06 26 56	-4 45 07	"	07:10	07:24	14m / 14m	0:15E	"	"	"	"	~10.0		–	–	–	"	"	"	—
	" 217C	06 34 05	-62 46 31	"	07 41:20	08:05	14m / 19m	0 10E	"	"	"	"	~10.6		–	–	–	"	"	"	—
	" 217B	06 34 05	"	"	08:06	08:52	46m / 46m	1 05W	"	"	"	"	~11.7	–	–	–		"	"	"	—
2481	SW Indi	20 53 30	-45 48 00	NOV 14,15	01:04	01:18	14m / 14m	3 15W	"	"	"	"	~10.0	—	—	—	—	"	"	"	—
	Lem 7 #9	20 33 18	-34 48 45	"	01:29	01:48	19m / 19m	4:10W		"	"	"	~10.0	–	–	–	–	"	"	"	—
	" E35D	21 33 10	-00 55 31	"	01:53	02.14.5	11.6m / 10m	4:00W	3" / clear	"	"	"	~9.7	–	–	–		"	"	"	—
	879B	21 58 19	-29 09 32	"	02:21.5	03.12.5	50m / 50.5	4:10W		"	"	"	~11.4	–	–	–	–	"	"	"	—
	" 106E	22 22 57	-04 57 14	"	03:22.0	03:28.7	4.3m / 6.7	4:00W	"	"	"	"	~8.6	–	–	–	–	"	"	"	—
	" 61A	02 33 14	-75 59 04	"	03:43.00	03:44.00	1m / 1m	0:05W	"	"	"	"	~7.2	–	–	–	–	"	"	"	—
	" 61A	02 33 14	-75 59 04	"	03:45.00	03.46.30	1m / 1.5	0.06W	"	"	"	"	~7.2	–	–	–	–	"	"	"	—
	" 62B	02 37 59	-28 15 25	"	03.51.00	03 52	35m / 1m	0.47W	"	"	"	"	~11.1	–	–	–	–	"	"	"	—
	CT Eri	04 28 35	-33 37	"	04 31.00	05:00.5	17m / 1.5	0 40W	"	"	"	"	~10.3	–	–	–	–	"	"	"	—
	Alkm 147D	05 38 25	-17 51 30	"	05 27	05.36.5	9m / 9.5	0 40W	"	"	"	"	~4.5	–	–	–	–	"	"	"	—
2482	" 147G	" "	" "	"	05 55.0	06:15	13m / 20m	.35E	"	"	"	"	~10.0	–	–	–	–	"	"	"	—
	" 195C	06 26 56	-04 47 07	"	06:29.0	06:47	9m / 12m	1 05E	"	"	"	"	~11.0	–	–	–	–	"	"	"	—
	" 217C	06 39 05	-62 46 31	"	06:54	07:29	36m / 35m	0:15E	"	"	"	"	~11.1	–	–	–	–	"	"	"	—
	" 260D	07 26 57	-11 30 52	"	07:38	07'56	13m / 18m	0 00E	"	"	"	"	~10.0	–	–	–	–	"	"	"	—
	" 275D	07 37 34	-01 24 46	"	08:06	08:22	10m / 16m	0:35E	"	"	"	"	~9.7	–	–	–	–	"	"	"	—
	" 280B	07 33 41	-48 59 53	"	08:28	08:50	20m / 22m	0 15E	"	"	"	"	10.5	–	–	–	–	"	"	"	—
2483	" 879C	21 58 19	-29 09 32	15/16	01:57.5	02:45	48m / 47.5	3 43E	"	"	"	"	~11.5	–	–	–	–	"	"	"	—
	" 7?7B	22 58 46	-56 46 52	"	03.04.0	04:25	1m15s / 21	4 25W	"	"	"	"	~12.1	—	–	–	–	"	"	"	—
	" 55B	02 11 32	-71 06 36	"	4 57	06.30	21m / 1m33	.02	"	"	"	"	~12.2	–	–	–	–				
	" 4C	05 37 42	-02 36 24	"	06:50	07.08	13m / 13m	0:25	"	"	"	"	~10.3	–	–	–	–	—	"	"	clear/cirrus ?
	" 146D	"	"	"	07 10.5	07:11:50	1m / 30	0:10	"	"	"	"	~7.5	—	–	–	–	—	"	"	—
	" 147G	05 38 25	-17 51 29	"	07:33.5	07:40.5	7m / 13m	0 20	"	"	"	"	~7.4	—	–	–	–	—		"	

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2483	Allen 147D	05 33 35	-17 51 24	NOV 15/16	07:52	07 57	16m 7m	1h 00m W	2"/Clear	3-34	100 0.6	10° 7.0	~10.5	-	-	-	-	IIa-D	1m 5	Station 1m 14 @ GL	Power failure
	" 147C	"	"	"	08:06	-	-	-	-	-	-	-	-		-	-					Power failure
	" 147D	"	"	"	8:08	8:28	16m 20m	1h 45m W	"	"	"	"	~10.5		-	-		"	"	"	—
v	184 Allen 924	22 43.9	-79° 53'	NOV 16/17	2h 02m 5	2h 08	53m 1h 53	2h 23m W	2"/Clear	3-34	100 0.6	10° 7.0	~11.4	-	-	-	-	IIa-D	1m 5	Station 2 @ GL	guided on dec.
	" 906C	22 22.9	-4° 57'	"	2 25 5	2 56.5	26m 31m	3h 35 W	"	"	"	"	~10.6	-	-	-	-	"	"	"	guided in R.A.
	" 948B	23 22.2	-63° 59'	"	3 00.0	3:30	1h 21m 1h 25m	1h 00m W	"	"	"	"	~ 11.9	-	-	-	-	"	"	"	guided in R.A.
	" 115C	04 51.8	+14° 30'	"	4 44.0	5:15	29m 31m	4h 40m E	"	"	"	"	~10.3	-	-	-	-	"	"	"	wind
	" [illegible]	5 34.6	-5° 24	"	5 34.0	5 34.5	30s 30s	1h 00m E	"	"	"	"	~10.3	-	-	-	-	"	"	"	wind
	" 141D	"	"	"	5 38.0	5:39.0	30s 1m	0h 55m E	"	"	"	"	~6.8	-	-	-	-	"	"	"	guided in R.A.
	" 148C	"	"	"	5 42.0	5:42.3	10s 15s	0h 50m E	2"/3"	"	"	"	~5.4	-	-	-	-	"	"	"	"
	" [illegible]	"	"	"	5 45.0	5 46.35	30s 45s	0h 45m E	"	"	"	"	~6.3		-	-	-	"	"	"	"
	" 141B	"	"	"	5 53.0	5 55.0	2m 2m	0h 40m E	"	"	"	"	~7.1		-		-	"	"	"	guided in R.A.
	" 147D	05 38 4	-17° 51'	"	6 03.5	6:31.0	28m 47.5	0h 10m E	"	"	"	"	~9.1	-	-	-	-	"	"	"	"
v	2485 " 147C	"	"	"	6 51.5	7:21	26m 29.5	0h 40m W	"	"	"	"	~10.0	-	-	-	-	"	"	"	"
	" 146C	05 37 42	-2° 36'	"	7 43.0	8:04	18m 21m	1h 25m W	"	"	"	"	~10.3	-	-	-	-	"	"	"	guided in dec.
	" 163B	05 54 50	+13° 56	"	8 17.0	8:26	7m 9m	1h 30m W	"	"	"	"	~9.2	-	-	-	-	"	"	"	"
v	" 275C	7 37 34	-8° 25	"	8 35.0	8:48.8	9m 13.8	0h 05m W	"	"	"	"	~9.8	-		-	-	"	"	"	"
2486	G 24-24	05h 40 21	-69° 41'	NOV 28/29	2h 16	2:55	35m	3h 00m E	3"-4"/clear	"	"	"	11.41	A5 I			m -5	"	"	C+n	guided in RA
	SK 69-247	05h 39 06	-69° 31'	"	3h 12	3:42	30m	2h 09m E	"	"	"	"	10.54	B5 I			m -3	"	"	"	"
	SK 69-260	05h 40 30	-69° 41'	"	3:52	4:30	38m	1h 11m E	"	"	"	"	10.80	G0 I			m -1	"	"	"	"
	SK 69-254	05h 39 54	-69° 45'	"	4:44	7:10	2h 26m	1h 20m W	"	"	"	"	12.31	B5 I	NeA	< 10s	m +1	"	"	"	"
2487	SK 69-7	04h 50 15	-69° 29'	NOV 29/30	3:58	4:22	24m	28m E	3"/clear	"	"	"	10.63	B9 I			5	"	"	"	"
	SK 69-8	04h 49 23	-69° 28'	"	4:31	5:30	59m	40m W	"	"	"	"	11.61	B5 Ia			3	"	"	"	"
	SK 69-294	05h 43 34	-69° 15'	"	5:44	6:29	45m	45m W	"	"	"	"	11.33	G0 Ia			1	"	"	"	"
	SK 69-270	05h 41 29	-69° 05'	"	6.38	7:28	50m	1h 45m W	"	"	"	"	11.41	B3 I			-1	"	"	"	"
	SK 69-239	05h 38 16	-69° 07'	"	7:34	7:58	24m	2h 20m W	"	"	"	"	10.54	A0 I			-3	"	"	"	"
	R 136	05h 38 42	-69° 07'	"	8:01	8:11	10m	2h 33m W	"	"	"	"	9.56	WN+O	NeA	< 10s	-5	"	"	"	"
2488	SK 69-280	05h 41 54	-69° 19'	DEC 8/9	2:57	4.53	1h 54m	10m E	3"/cloud	"	"	"	12.66	B1			4	"	"	"	" thruout cloud

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 364
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	RA	DEC	DATE U.T.	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
LC		1982																			
2489	β FOR	02 48.4	-32 30	8/9 JAN	0117	0128	1.2, 2.4, 5	1h11mW	1.2/clear	3.36	50μ/1.2	120/70	5.45	G8	NeA	10s		baked IIa-O	M-S		observer sick ∴ low effic. - cannot use exp.
	HR1372A	04 17.8	-63 17	1982	0202	0205	2m.5	20mW	1.4/clean	"	"	"	6.0	B9			(first	34, 65 9 1½m HF)	15m 67°F		
	" B	"	"		0206	0222	16m	34mW	"	"	"	"	7.9	A							
	focus	20, 22, 24, 26, 28, 30, 32, 34																			
2490	β TRI	02 08.4	+34 55	9/10	0035	0043	20, 40, 80s 4, 8, 16, 20m	70mW	1.5/clean	3.34	50μ/1.2	"	3.14	A5 III	NeA	10s		"	"		still sick, but better 15°C 5mph 50%
	HR753	02 34.9	+06 51	JAN 1982	0058	0132	4, 8, 16m 8	1h32mW	1.2/clean	"	"	"	6.8	K3 V							
	α CET	03 01.2	+04 05		0140	0147	30s, 1, 2m 30s						4.17	M1.5 III							
	57 TAU	04 18.9	+13 59		0156	0206	1, 2, 4m 2.5	20mW	1"	"	"	"	5.87	F0 IV							
2491	HR1405A(1)	04 24.2	-57 07	"	0231	0247	15m 12m	1hW	1"				7.47	G0					M-S 22mm 67°F		! by mistake.
	B(2)	"	"		0249	0316	26m 18m	1h10mW	<1"				7.98	"							
	HR1506(A)	04 42.6	-08 49		0348	0402	14m ✓	1h55mW	1"				7.61	G8							~~easternmost~~ SE
	1505(B)	"	"		0402	0410	8m ✓	2h3mW	<1"				7.21	F4							NW ~~southernmost~~
	HR2412A	06 31.9	-58 44		0423	0425	2m 1m		1"				5.66	B9							
	" B	"	"		0425	0520	55m 30m	1h22mW	1"		50μ/.8		9.59	F?							2072 Some contam.
	HR2736(A)	07 09.4	-70 24		0547		40, 40s 30				/.8		4.82	G8							
	2736(A)	"	"				2m <1m				/1.2		"	"							
	2735(B)	"	"			0554	3m ✓	1h22mW	1"		/1.2		6.09	F4							
	HR2497(A)	06 44.2	-30 34		0610	0614	4m 3m				"		6.48	B8							
	" B	"	"		0615	0830	120m 100m	4h22mW	1"		0.8		10.58	F?							full moon +1 day 13°C 48% 5mph Moon contam?
2492	β Tri	02 08.4	+34 54	10/11	0043	0045	20, 40s 40s	1h15mW	3"/clear	3.34	50μ/1.2	120/7.0	3.14	A5 III	NeA	10s	14V	baked IIa-O	M-S 15mm 67°F		V. poor seeing.
	α Cet	03 01.2	+04 04	JAN 1982	0049	0050	20, 40s 40s	28mW	2"/clear				4.17	M1.5 III			30m Blue filter				
	K Cet	03 18.2	+03 21		0056	0107	1, 2, 4m 8m	28mW	1.5/clear				5.5	G5V							
	HR1279A	04 06.5	+15 06		0125	0140	2, 4, 8m 8m						6.4	F3V							
	" B	"	"		0140	0253	73m ✓	1h25mW	1.2/clear				9.2	G8?							
	HR1771A	05 21.1	-24 44		0320	~~0345~~	4m 6		"				6.23	G0							
	HR1771B	"	"			0335	6m 10	54mW	"				6.81	A2							
2493	HR2162A	06 04.5	-48 23	"	0554	0619	24m 30						7.92	G5							Dev. w #2492
9.575 Sep	" B				0620	0700	40m ✓	3h35mW	1.5/clear				8.38	G5							
9.735 mag 15.175 Sep	HR3661A	09 12.0	-43 29		0720	0726	2m.5 ✓						5.85	B8							
	B	"	"		0728	0739	6m ✓	1h7mW	1"/clear				6.72	B9?							

NUMBER LC	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
		TEL																			
2493 cont	56 LEO	10 55.1	+06 19	10/11 JAN 1982	0820	0843	23m 20	30m W	1.5"/clear	3.34	50µ/1.2	120/7.0	7.35	M3.5III	NeA	10s		Baked IIa-O	M-1 15m 6 Å	4"	
	70 Vir	13 28.0	+13 54		0847	0856	1h24m 3		"				5.69	G5							
2494	HR 2488	00 08.4	-28 02	11/12 JAN 1982	0052	~~0104~~	4m 8	~~3h41m W~~	1"/clear	3.34	50µ/1.2	120/7.0	6.56	F4			14V 30m				Westernmost
	" A? "	"	"			0104	4m ✓	3h41m W					6.61	F4							Easternmost
	HR 2492 A	06 41.8	-38 20		0140	0153	5m 7 ✓	2h5m E	1.2"/clear				6.87	A3							
	" B	"	"		0155	0223	27m 30 ✓	1h35m E	1.2"				8.33	F?							
	HR 2158 A	06 04.3	-45 01		0236	0241	5m 6 ✓	39m E			1.2		6.45	F5							
	B	"	"		0242	0347	65m 25 ✓	26m W	1"/clear		.6		10.27	K							
	HR 2501 A	06 45.0	-30 56		0350	0358	4m 2 3 ✓				1.2		5.72	B3							
	" B				0358	0422	24m 27						8.24	B3?							
	HR 2468 A	06 38.1	-61 29		0432	0441	6m 8 ✓	46m W	1"/clear		1.2		6.89	G0							
	B	"	"		0446	0551	60m 55 ✓	1h56m W	"		.6		9.65	~~G6~~							(faint; then 8.66!) close pair 1".6 same custom. easternmost
2495	HD 70764 A	08 21.4	-40 53	"	0605	0622	16m 20		"	"	50µ/1.2	"	8.00	F5			"				
	" B				0638	0701	22m 25 ✓	1h23m W	"		"		8.3	F?			DEV w/ 2494				
	HR 3399 A	08 33.8	-37 31		0711	0741	30m ✓						8.03	K5							
	B	"	"		0742	0752	60m ✓	3m W	1-1.5"		50µ/.8		9.71	K?							
2496	14 Aqr	02 08.2	+25 56	12/13 JAN 1982	0038	0049	1.5 3.6 6 ✓	1h27m W	1.5-2" clear	"	50µ/1.2	"	5.3	F2III	"	"	"	"	"	"	
	HD 27524	04 20.2	+21 02		0104	0137	~~5 10 20 40~~ 8 ✓	3m W	1"/clear				7.2	F5V							(lost cover.)
	θ^2 Tau	04 27.2	+15 50		0140	0143	~~10 20 40~~ 8 ✓	3m W	"				3.6	A7III							
	β Eri	05 07.0	-05 04		0147	~~0149~~ 0151	3, 6, 12 5 ✓	30m E	"				2.9	A3III							
2497	μ Lep (+)	05 12.0	-16 10	"	0211	0213	2h 12m 30s ✓	12m E	"				3.2	B9III							
	ζ Ori	05 16.6	-06 51		0216	0219	6 12 24 ✓	11m E	"				3.5	B5III							
	β Ori	05 13.8	-08 11		0223	0225	1, 2, 4s at 4 ✓	2m E					0.09	B8Ia							
	19 Tau	05 31.1	+18 36		0232	0308	5 10 20 10 ✓	24m W	1.5"				6.4	M2Iab-Ib							
2498	χ Aur	05 31.4	+32 13	"	0320	0324	~~1, 2, 4~~ 3 ✓	39m W	"				5.1	B5Iab							
	134 Tau	05 48.4	+12 40		0327	0330	1, 2 2 ✓	29m W					4.8	B9IV							
	HR 2190	06 10.7	+21 53		0333	0419	46m ✓	54m W	1" clear				9.5	M0-M1Iab							
	HD 36395	05 30.5	-03 37		0423	0520	53m ✓	2h37m W	1.5"				9.5	M1V							
	HR 2630	07 01.3	+24 17		0524	0538	2, 4, 8m 8 ✓	1h23m W	1.5"				6.12	G5Ib-II							(8m nightcap)
	χ Gem	06 36.7	+16 25		0540	0541	1, 2, 4, 8s 8 ✓	1h49m W	"				1.9	A0IV							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2499	η^2 Dor	06 11.9	−65 30	12/13 JAN 1982	0600	0625	3.5, 7, 14m / 14m	3h W	1.5/clear	3.34	50μ/1.2	120/7.0	6.5	M2.5III	NeA	10s	14V 30mm	Baked IIa-O 3h, first ½ hr. w/ NH_2	M-S 15min 67°F		Corbally Program
	13 Mon	06 31.9	+07 21		0628	0631	2, 1, 1/2, 2m / 2m	2h47m W					4.5	A0Ib							
	δ CMa	07 07.5	−26 19		0634	0636	3, 6, 12, 5 / 12s	2 16W					2.5	F8Ia							
	11 Pup	07 56.1	−22 46		0638	0643	½, 1, 2 / 2m	1 34 W					4.92	F8II							
2500	HR3574A	08 56.2	−52 38	"	0709	0710	1m ✓		"	"	"	"	4.6	B5			Dev w/ 2499				
	" B	"	"		0711	0727	16m / 12m	1h18m W					8.1	A?							
	(2) HR3831A	09 36.1	−48 37		0730	0739	6, 4 ✓						6.5	Ap							
	~~"~~ B	"	"		0740	0900	80m ✓ / 2h12m W						9.55	G?							
2501	BS 72	00 17.7	−08 11	13/14 JAN 1982	0044	0055	11m / 15	3 29W	1.5/clear	3 34	50μ/1.2	120/7.0	7.1	G0	NeA	10s	14V 30min	baked IIa-O	M-S 15min 67°F		Solar Program (Vaughan list)
	HR 88	00 21.9	−12 15		0058	0109	11m / 15	3 37W					7.0	G2							
	HR 448	01 32.8	−07 05		0111	0118	6m / 7	2 35W					6.4	G2							ξ
	HR 695	02 21.5	−23 50		0121	0125	3m / 3.5	1 53W					5.8	G1							K FOR
	HR 772	02 36.4	−34 38		0128	0134	6m / 7	1 48W					6.4	G1							λ^2 FOR
	HD 20619	03 18.2	−02 51		0136	0152	16m / 20	1 24W					7.7	G							
	HR 1006	03 17.6	−62 35		0156	0200	4m / 5						6.2	G2							ξ' RET
	HR 1010	03 18.0	−62 30		0201	0204	3m ✓	1 37W					5.8	G1							ξ^2 RET
	HD 28068	04 25.3	+16 50		0211	0256	45m ✓	1 20W					8.7	G1							HYADES 63
	HD 28099	04 25.7	+16 44		0259	0350	51m ✓	2 15W					8.7	G8							" 64
	HD 30455	04 47.6	+18 42		0353	0420	26m ✓	2 23W					7.6	G2							
	HD 31966	04 59.5	+14 23		0422	0442	19m ✓	2 32W					7.4	G5							
	HR 2290	06 20.0	−48 40		0447	0459	12m ✓	1 30W					7.2	G0							Hardorp's favorite star, standard
2502	HR 3432A	08 32.5	−62 43	"	0536	0543	7m ✓		"	"	"	"	6.5	K0			Dev w/ 2501				SPOT SENS. NOT WORKING — REPAIRED
	" B	"	"		0544	0727	103m ✓	1h42m W			6.6		10.8	G?							
	HR 3456	08 41.4	−45 16		0731	0738	1, 2, 4m / 3				T.2		5.44	B5Ib							
	(*) HR 3496	08 46.9	−46 00		0740	0750	1, 2, 4, 8m / 7	2h5m W			"		6.31	F2Iab							
	HR 3708	09 18.3	−51 26		0753	0818	2, 4, 8 / 8						6.41	B7Iab							
	HD 111631	12 49.7	−00 36		0822	0902	40m / 60	56m E					10	M0.5V							
2503	HD 4308	00 44.3	−65 40	14/15 JAN 1982	0037	0059	21m ✓	3h10m N	2" clear	3.34	50μ/1.2	120/7.0	7.2	G5	NeA	10s	14V 30mm	Baked IIaO	M-S		
	HR 512	01 38.4	−8304		0105	0117	12m ✓	2 34W	2" clear				6.4	G2							
	HD 28344	04 27.6	+17 15		0143	0230	46m ✓	57m W	1" clear				8.4	G2							HYADES 73

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
	HD29461	TEL.																			
2503	043738	+14 05 →		14/15	0233	0332	58m ✓	1h48mW	1" clear	3.34	50μ/1.2	120/70	8.7	G5	Neu4	10s	14V	Baked IIa-O M-5			HYADES 10C
(CONT)	HR2067	05 54.8	+13 56	JAN 1982	0335	0350	15m ✓	50mW					7.2	G0			30mm	3m 65° 6μ° just ½m, 15m NH.			
	1 GEM	0602.8	+23 18		0352	0355	2m5 ✓		1"5/clear				5.1	G5							
	HR2208	0612.1	+10 39		0425	0438	12m ✓						7.1	G8							
	HR2354	0624.8	−63 21		0442	0454	12m ✓	1h24mW	1"5/clear				7.1	G0							
	HR3138	0757.6	−60 14		0459	0506	5m5 ✓						6.2	G2							
	HR2667A	0731.6	−43 30		0510	0518	8m ✓						6.4	G3							
	HR2668B	0736	−43 30		0519	0539	19m ✓	1h30mW	1"5-2" clear				7.6	G3							
	HR2882	0730.2	−37 17		0540	0559	18m ✓	1h24mW	2" clear				7.3	G5							Wind↑
	HR3176	0806.6	+21 40		0602	0609	6m ✓	57mW	"				6.0	G2							μCNC
2504	ε HYA	08 45.5	+06.33	"	0628	0630	2m ✓ 1"5	48mW					4.1	G0+F			Dev. w/ 2503				Companion is slit but faint. Δm=2?
	HR3538	08 53.3	−05 21		0632	0646	13m ✓	48mW					6.7	G3							
	HR3626	09 07.5	+26 45		0649	0705	13m20s ✓	53mW	2"/clear				6.6	G5							Wind 25 kph
	HR3951	09 59.9	+32 02		0710	0726	14m20s ✓10	21mW	2-3"/clear, wind↑				6.1	G4							7s CNC
	HR4030	10 15.4	+23 38		0729	0740	10m ✓	20mW	1.5-2"				6.6	G1							2o LME
	HR4328	11 07.2	−30 03		0743	0802	18m ✓	11mE	2"				7.1	G2							3s LEO
	HR4523	11 45.8	−40 21		0804	0809	4m 3.5	42mE	"				5.6	G5							
	HR4903	12 54.3	−43 59		0812	0822	9m ✓	1h37mE	2"				6.5	G2							
	✓CEN A	14 38.6	−60 43		0826	0827	1s 2s	3 16E	3m				0.7	G2							
	MOON	12 31.1	+02 48		0833	0834	3s 2s	1h2mE					—	G2							Neg. guesting.
	Callisto	14 23.7	−12 58		0845	0901	16m ✓	2 28E	2"				6.3	G2							Δ=0.6 at 1.5" for both limbs
2505	HD20439	03 16.5	+07 42	15/16	0045	0135	50m ✓	1 17W	1"5 clear, windy	"	"		8.4	G1	"	"	14V 30mm	"	"	✓	HYADES #2
	HD30246	04 45.5	+15 28	JAN 1982	0137	0307	90m ✓	1 21W	2" clear, windy				9.0	G5							HYADES 142
	HR1656	05 06.5	+18 38		0312	0316	4m ✓	1h8W	"				5.6	G4							104 TAU
	HR1662	05 06.7	+09 30		0319	0333	12m20s ✓	1 24W	"				6.8	G2							13 ORI
	HR1988	05 45.7	+01 14		0355	0406	10m ✓	1 19W	1"5				6.7	G4							
	HR1532	04 46.8	−16 53		0409	0416	5m ✓	2 27W	1"5-2"				6.1	G1							58 ERI
	HR1536	04 47.8	−05 40		0418	0427	8m ✓	2 37W	2"				6.4	G0							
	HR1608	04 59.1	−10 15		0429	0437	8m ✓	2 37W	"				6.3	G4							
	HR2007	05 47.6	−04 03		0439	0448	9m ✓	2 W					6.6	G4							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T EXP. BEGIN	U.T EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2505	HR2318	6 24.2	−28 45	15/16	0452	0501	9m / 12	1h 36m W	2" / clear, windy	3.34	50μ / 1.2	120 / 7.0	6.9	G0	NaA	10'	14V	baked IIa-0	M-5 15m 67°F		
(cont)	HR3210	8 11.1	+17 44	JAN 1982	0526	0538	12m ✓	26m W	1.5-2				6.6	G2			30m	65°C 3hrs N_2H_2 first ½hr			I^2 Nic-(blk) Dec Tradod
	HR3510	8 50.1	+15 26		0544	0556	11m / 15	5m W	1.5-2				6.8	G2							
	ε HYA	8 45.7	+06 33		0559	0601	1.5m ✓	14m W					4.1	G0+F7							Companion in RA sunlit eastern.
2506	HR3750	9 27.0	−05 58	"	0618	0622	4m ✓	6m E	1.5	"	"	"	6.0	G2	"	"	Dev 4/2505	"	"	"	
	HR3574(3)	8 56.0	−52 38		0627	0641	14m / 10	44m W	"				8.1	A							
	HR3951	10 000	+32 04		0646	0655	9m / 11	6m E					6.1	G4V							20 LMi.
	HR4523(2)	11 46.0	−40 20		0659	0709	5m 3 / 4	1 43E	"				5.6	G5							
	HD105563A	12 09.1	−63 38		0715	0757	42m ✓	1 13E	2-4"		/ab		8.86	M.							seeing poor over plot, tracks!
	PALLAS	13 11.4	−06 58		0807	0912	65m / 90		2"		/1.2		9:	G2.							
	moon						2, 4, 6s / 2s							G2							
2507	HD26736	04 13.4	+23 34	16/17	0058	0201	63m ✓	50m W	2" clear	3.34	50μ / 1.2	120 / 7.0	8.8	G3	"	"	14V 30m	"	"		(but dark slide) HYADES 15
	HD27406	04 19.1	+19 12	JAN 1982	0204	0234	30m ✓	1h 17m W	1.5				8.0	G0							HYADES 31
	HD27836	04 23.3	+14 44		0237	0308	31m / 40	1 48W	"				8.2	G1							" 50
	HR1487	04 38.4	−14 21		0311	0323	12m ✓	1 48W	"				6.5	K1 IIIa							Std
	HR1685	05 10.1	−02 13		0325	0345	20m ✓	1 37W	1.5-2				7.3	K1 IVa							"
	HD33793	05 11.1	−44 54		0352	0537	105m ✓	3h 29m W	1.5		6.6		10.3	~~pVI~~ G							wrong star Std KAPTEYN'S STAR
	HR2318	0624.1	−28 46		0540	0552	11m ✓	2h 30m W	1.5		1.2		6.9	G0							Solar prog.
	HR2497A	0644.4	−30 33		0555	0600	4m 6						6.46	B8							Corbally prog.
	B	0 4	"		0601	0731	90m ✓	3 49W	1" clear		1.6		10.5	A?							"
	HR3574B	08 56.1	−52 38		0734	0744	40m ✓	1 51W	1" clear		1.2		8.1	A?							"
	HR3739	09 23.7	−51 39		0750	0804	2, 4, 8m / 8	1h 44W	"				6.64	A7Ia-b							Std.
2508	PALLAS	13 12.3	−06 51		0817	0918	60m / 80	50m E	<1" clear				9	G2 V							Std. poor seeing not done twinkling bad at times
2509	HD27836	04 23.1	+14 44	17/18 JAN 1982	0100	0155	55m ✓	36m W	3"-1.5 clear				8.2	G1 V							(VB50 VB17.
	HD26756	04 13.3	+14 36		0157	0342	105m / 120	2 36W	1.5 "				9.2	G5 V							VB29
	HD27383	04 18.9	+16 30		0345	0416	30m / 40	3h 3m W	1.5 "				7.4	F9 V							VB48
	HD27808	04 23.2	+21 44		0418	0458	40m / 60	3 42W	1.5-2"				7.7	F8 V							
	HR2412B	0632.1	−58 43		0503	0620	77m ✓	2 55W	1"				9.6	A ? or F?							Corbally prog.
	HR2497A	0644.5	−30 34		0623	0636	12 (+6 off)	2 59N	2"-1.5				6.5	B8							"
	KHYA	09 39.3	−14 13		0638	0646	4m / 2m	13m W	1.5				4.9	B5V							Std.

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2509	HR3510	08 50.0	+15 26	17/18	0649	0702	12m / 15	1h 19m W	2" / clear	3 34	50µ / 1.2	120 / 20	6.8	G2	NeA	10s	14V 30mm	Boiled IIa-O 3m 65°C. first 1/2 hr. N_2H_2	M-5 15min 67°F		
(CONT)	HR3259	08 17.4	-12 32	JAN 1982	0705	0719	13m / ✓	2h 9m W	1.5 / clear				7	G8							
	HR5183	13 45.9	+06 31		0725	0738	12m / ✓	3h 1m E	2" / clear				6.9	G0							
2510	Calibet	14 24.7	-13 01	"	0757	0817	20m / ✓	3h E	2"				6.3	G2V							
	HR5384	14 22.2	+01 24		0819	0832	12m / ✓	2 43E	1.5"				6.9	G3							
	ζ VIR	14 27.0	-02 06		0833	0838	4m 5s / 4	2 42E	"				5.5	G2							Comparison star 95° Δm = 2m, Δz 5'
Change to IT camera -																					
2511	T PHE	00 29.7	-46 24	18/19	0100	0230	90m / x	5h 10m W	1" / clear	3.34 moved	100µ / .8	120 / 20	11.5*	Me	NeA	1s		IIa-D	M-5		guide 1 focus
	T HOR	03 00.6	-50 48	JAN 1982	0236	0300	24m / x	3h 11m W	"				10.5	Me					15min 67°F		"
	T RET	04 33.9	-62 58		0312	0444	92m / ✓	3h 20m W	"				12	Me							Many
	R CAE	04 40.1	-38 12		0452	0517	25m / 20	3h 48m W	2" / clear wind ↑				10.5	Me							
2512	W PUP	07 45.6	-42 04	"	0555	0659	64m / 50	225W	1.5 moved	"	"	"	11.5	Me	"	"	"	"	"		
	AS PUP	08 09.2	-38 04		0705	0727	32m / +15	230W	" /	"			10.5	Me							
	S CAR	10 09.3	-61 24		0735	0740	5m / +2	42m N	1" /				8.5	Me							
	W VEL	10 14.9	-54 22		0747	0312	25m / 15	1h 07m W	"				10.5	Me							
	W CEN	11 54.7	-59 06		0819	0907	48m / +36	23m W	"				11.5	Me							
2513	V PHE	23 31.9	-45 59	19/20 JAN 1982	0046	0105	19m / 25	4h 47m W	3" / clear	"	"	"	11.0	Me	"	"		"	"		
	T PHE	00 29.8	-46 24		0110	0210	60m / ✓	4 56W	1.5 / clear				11.5	Me							
	T HOR	03 00.7	-50 39		0213	0231	18m / ✓	2 45W	"				10.5	Me							
	o CET	02 18.5	-02 59		0235	0240	5m / +8	3 36W	"				9.5	Me							
	~~T RET~~	~~04 34.0~~	~~-62 59~~		~~0247~~								12.5	Me							
	R CAE	04 40.1	-38 13		0251	0311	20m / 15	1h 47m W	2" / clear				10.5	Me							
2514	HD36395	05 30.6	-03 36	"	0417	0424	5m / ✓		1" / clear	"	"	"	10	M1.5V	"	"		"	"		
	337933N	05 11.0	-44 57		0432	0453	20m / ✓	2h 56W	1.5 / clear				(10.3	M1pV	?)						northern spair
	" S	05 11.1	-44 59		0457	0517	20m / ✓	3 21W	"				?	?							southern spair
	W PUP	07 45.4	-42 07		0523	0613	50m / ✓	1 43W	"				11.5	Me							
	AS PUP	08 09.2	-38 08		0617	0632	15m / ✓	1h 40m W	1.5 /				10.5	Me							
2515	S CAR	10 09.4	-61 27	"	0654	0657	2m / ✓	3m W					8.0	Me							
	W VEL	10 14.9	-54 24		0702	0717	15m / ✓	18m W	"				10.5	Me							
	W CEN	11 54.4	-59 10		0724	0800	36m / ✓	39m E					11.5	Me							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS	REMARKS
(Cont) 2515	μ CEN	12 32.6	-54 35	19/20	0805	0820	15m ✓	58m E	1.5 clear	3.34	100μ/1.8	120/7.0	10.5	Me	NeA	1s		IIa-D	M-S 15mm 6.7°F		
	U OCT	13 25.3	-84 06	JAN 1982	0829	0850	21m ✓	1h 19m E	"				11:	Me							
2516	T OCT.	21 13.7	-82 11	20/21	0105	0127	22m /30	7h 32m W	1.5/clear	"	"	"	10.5	Me	"	"		"	"		
	T UMC	22 39.8	-61 39	JAN 582	0137	0207	30m/45	6h 45m W	"				11	Me							
	V PHE	23 31.7	-46 03		0210	0241	31m/40	6 27W	2"/				11	Me							
	o CET	02 18.4	-03 04		0244	0259	10m ✓	3 53m W	2"				10	Me							
	R CAE	04 40.1	-38 17		0257	0312	15m ✓	1 51W	1"/clear				10.5	Me							
2517	R TCEN	13 47.5	-36 48	"	0550	0746	116m/180	2 42 E	"				12.5	Me							
	S LIB	15 20.4	-20 19		0754	0827	33m/50	3 34 E	"				11	Me							
	W PAV	17 49.1	-62 25		0836	0908	32m/50	5 22 E	1.5				11.5	Me							
	RS Sco	16 54.4	-45 04		0915	0918	3m/2	4 17 E	1.5"				8	Me							
	R CEN	14 15.8	-59 50		0921	0924	2m ✓	1h 32m E					7.5	Me							
2518	o CET	02 18.4	-03 02	21/22	0046	0246	2h	3h 51m W	<1" hazy	"	50μ/1.2	120/7.0	10	Me	NeA	10s	14V 30mm	baked IIa-O 65°3hrs 1st half in N_2H_2	M-S 15mm 6.7°F		Crowe *
	HR1318A	04 13.5	-10 19	JAN	0250	0300	10m	2h 7m W	1" "				6.1	K3.							Campbell *
	B	"	"	1982	0301	0440	100m	3 49W	"				9	G2							
	μ LEP	05 12.3	-16 11		0448	0446	20,40,80s	2 57W	1.5				3.2	B9 III							Cowell std.
	HD35600	05 26.1	+30 14		0455	0459	4m	2 56W	"				5.8	B9 Ib							"
	S CAR	10 08.7	-61 27		0502	0541	39m	1h 5m E	1"/clear				8	Me							Crowe prog.
	"	"	"		0602	0612	10m	34m E	"				"	"							
	HD105563B	12 09.0	-63 40		0619	0702	42m	1h 44m E	1"/clear		0.6		8.68	A?							difficult pair.
	HD78558	09 07.7	-15 03		0717	0733	16m	1 47W	"		1.2		8.8	G2							Solar prog.
	HD81809	09 27.0	-06 00		0737	0740	3m	1 37W	"				6.0	G2							"
2519	R CEN	14 15.8	-59 49		0757	0820	23m	2 33E	1.5				7	Me.							Crowe prog.
	RS Sco	16 54.6	-45 01		0830	0900	30m	3 30E	2"				7.5	Me							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 371

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1982	DEC 1982	DATE U.T. 1982	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H A END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2520	HD 65813	7 58.7	-28 23	02-23	02:32	02:35	3 / 3m		2"/clear	3-34	100 / 1.2	120 / 7.0	8.0	sd F8				IIa D	15m M/S 63°	F	1
	"	"	"	"	02:39	02:49	10m / 6														3 dbl exp
	"	"	"	"	02:51	02:52.5	1½ / 1½														5 ½ exp
					02:55										NeA	1s					7
					03:00	03:04	4 / 3								NeA	1s					9 comp titled off superimposed
2521-1	LS 816A	7 49 35	-27 12 03		03:30	03:48	18 / 45m				0.8		11.23								-5 wrong star
-2					03 48	04 42	54 / 45														-3
-3	LS 841	7 32 27	-26 11 03		04:50	06:38	108 / 90						11.94								-1
-4	IC 458-25	10 27 06	-17 34		06:48	06:22	54 / 150						12.49								+1
-5	NGC 5316+03	13 53 30	-6 44		06:30	09:56	26 / 30						10.62								+3 dawn
2522-1	JM 73	6 30 41	5 02 25	02-24	00:42	00:48	6 4½	0 12E	2" clear		100 / 1.2	120 / 7.0	8.07					IIa D	15m M/S 63°	F	-5 No clear field
-2	JM 74	6 30 55	5 02 49		00:51:30	00 54:30	3 3m	0 06E					7.75	08 V							-3
-3	JM 75	6 30 58	4 57 24				80s						6.87	05 V							-1
-4	JM 76	6 31 12	4 58 51		01:01:30	00:06:30	5m						8.36	09 V							+1
-5	JM 77	6 31 11	4 50 14		01:09	01:11	2m						2.48	04 V							+3
-6	JM 78	6 31 18	4 52		01:13:45	01:15:30	1m						6.85								+5
-7	JM 79	6 30 12	4 51		01:18	01:23	5m		2"-4"				8.35								+6
2523-1	NGC 2169-1A / 1B	6 08 00	13 47 48		01:52	01:58	6m														-5
-2	-1B	"	"		02:02	02:05	3m														-3
-3	NGC 2343-15	7 07 12	-10 35		02:18	02:58	40m / 3h		1-2		0.8		12.44								-1
-4	-22	7 06 48	-10 32		03:05	04:35	90 / 90		1-2				11.91								+1
-5	Stack 13-14	11 12 54	-58 47		04:56	06:58	120m		1-2				12.17								+3
2524-1	" 107	11 14 18	-58 46		07:12	07:20	8 / 8m	1 38W	2		1.2		8.9								-5
-2	-101	11 14 00	-58 45		07:22	08:26	60	2 42W	2		0.8		11.5								-3
-3	-105	"	"		08:28	08:32	4 60		2				13.4								-1
-4	-106	"	"		08:32	08:36	64 60		2				12.4								+3
-5	-5	"	"		08:38	09:56	18 25		2-3				10.72								+5 SKY original DAWN GC

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A 1982	DEC. 1982	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	L.S.T. H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2525	JM 73	6 30 41	5 02 25	2:25	00:13:00	00:17:12	4^m12^s	5:52:20	2" clear	3.34	100 / 1.2	120 / 7.0	8.07					IIa-D	MS 12 m LLC	F	-5
-2	JM 74	6 30 55	5 02 49		00:18:30	00:21:35	3^m	5:57					7.75	08 V							-3
-3	JM 75	6 30 58	4 57 24		00:22:50	00:24:20	90^s						6.87	05 V							-1
-4	"	"	"		00:24:40	00:26:05	85^s						6.87	05 V							+1
-5	JM 76	6 31 12	4 58 51		00:33:50	00:38:55	5^m	6:14½					8.36	04 V							+2
-6	JM 77	6 31 11	4 50 14		00:42:00	00:44:00	2^m	6:19½					7.48	04 V							+4
-7	JM 78	6 31 18	4 52		00:45:00	00:46:02	62^s	6:21½					6.85								+6
2526	NGC 1662-1	4 47 24	10 54 36		01:00	01:16	15^m	6.51	1-2"		100 / 0.8		9.58								-5
-2	-8	"	"		01 18	01:32	14^m						9.79								-3 slight contam from 110'
-3	-110	"	"		01:34	01 44	10^m	7:19					9.5:								-1
-4	-13				01 48	02:38	50^m	8:15					11.09								+1
-5	NGC 2343-20	7 07 18	-10 37.6		02:44	04.06	86 / 80	9 42	1-2"				11.70								+3
-6	• -13	"	"		04:18	05:18		10.54					11.17								+5
2527	St 13- 1	11 12 48	-58 47		06:03	06:18	7½ / 6						8.68								-5 NS ~~2 orders~~
-2	-8				06:21	07 20	40 / 40	1.43 W					11.10								-4 NS 2 orders 2m
-3	-7				07.21	08:00	32 / 32						10.83								-2 NS 1.6 — 2m
-4	-12				08.12	09 22	/ 60		2-3"				11.41								+1
-5	HD 122879	14 05 C	-57 37		09.30		85		2-3"		100 / 1.2		6.50	B0 Ia							+1
-6					09.31		40														+3
-7	HD 125835	14 23 5	-68 05 8		09:37		60 40						6.57	A3 Ib							+5
-8	HD 125721	14 24 4	-48 14		09:42		40 36						6.26	B1 III							+6
2528	-1 HD 22879	3 39.3	-03 20	2:26	00 17		55		2"		100 / 1.2		7.23	gbF8 mF3				IIa D	MS	F	-5
-2					00:14		100							"							-3
-3					00:16	00 21	5m / 300							"							-1
-4	NGC 1662-23	4 47 24	+10 54.6		00 30	02 50	140 140		1-2" clear		100 / 0 8		12.30								+2
-5	NGC 2343-24	7 07.3	-10° 34'		03 02	05 08	126 120		"				12.21								+3
-6	HD 65813	7 58.8	-32° 08'		05 14	05.24	9		"		100 / 1.2		8.02								+5 3x normal
-7	"				05:24	05 27.5	3		"												+6 1x "
2529	-1 Stock 13-16	11 12.8	-58 47		05 47	07 17	90				100 / 0.8		12.00								-5
-2	-20				07.18	08.40	82 80		1" "				11 79								-3

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1982	DEC 1982	DATE U.T. 1982	UT EXP. BEGIN	UT EXP. END	TOTAL / CORR.	HA END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2529-3	BD+13-102	11 12.8	-58 47	2 26	08 42	09 22	40		1-2" clear	3.34	100 / 0.8	120 / 7.0	~11.0					IIa D	MS 65° 102m	F	-1
-4	HD 140283				09 27	34:30	7½				100 / 1.2		7.72	gF6 hG2 mA3							+1 3x normal
-5	"				09 35	37:30	2½														+3 1x "
-6,7	"	15 42 18	-10° 52m		09 40		25s														+5,+6 ½x "
		1982.5	1982.5																		
2530-1	AG PEG	21 50 11	12 32 34	6-29	06 50	09 42			3" clear	3.34	100/0.8	120/7.0	~10		Ne-Ar	10s		IIa-0			
-2	R AQR	23 42 55	-15 22 53	6-29	09 16	10 36 15		+0 40	2.5" clear	3.34	100/0.8	120/7.0	~10		Ne-Ar			IIa-0			
2531-1	RW HYD	13 33 20	-25 17 30	6-30	2:21	2:50		2 30	2" clear	3.34	100/0.8	120/7.0	~9.5		Ne-Ar			IIa-0			
-2	RW HYD				2:51	3:39			2" clear	3.34											
-3	R AQL	19 05 32	8 12.1	6-30	3:54	3:56															
-4	R AQL				3:56	4:00															
-5	R AQL				4:00	4:09															
-6	R AQL				4,10 30	4:24,30		0h 50m	2" clear												
-7	RS OPH	17 49 17	-6 42 14		6:48	7:54		2h 55m	2" clear												underexposed.
-8	AG PEG				8:15,45	8:45.30		35m													
-9	AG PEG				8:40:30	9:15.30		1h 15m													
-10	R AQR				9.49	10:19		26m													
-11	R AQR				10:21;30	10:36:30		50m													
2532-1	T CrB	15 58 47	25 58 07	7-1	2:34	4.43		2h 30m			1.6										
-2	RS OPH	17 49 17			6:31	8:31		5h 20m			1.6										
-3	FN SGR	18 52 53	-19 02		9:10	10:12		5h			1.6										Circ. G-ORIS on Hydrogen I
2	RS OPH			7-3	5:15:30	6.09		5h			1.8										
2534-1	P -				7:17	7:58		10m													
2	R AQR				8:14:30	10:33		1 hr			1.										
2535-1	RX PUP			7-4	0h 09:	0h 31					1.6										
-2	T CrB				0h 57:30	1h 47:40					1.6										
-3	BD-21 3873				2h 02.30	3h 51:00					1.6										
-4	sky				3h 57.00																

NUMBER	OBJECT	R A	DEC	1982 DATE U.T. JULY	U T EXP BEGIN	U T EXP END	TOTAL / CORR.	H A END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	B MAG	SP	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2536-1	α Sco			5-7	1:41:08	1:42:22		-37m	OVERCAST				2.88								
-2	o Sco				1:55:30	2:00:50		-10m					5.35								
-3	ν Oph				2:30:00	2:32:45							4.34								
-4	HR 6842				2:38:18	3:02:28		+ 1h05m					6.32								-5° from nearly full mean Cirrus cloud
-5	η Sco				3:36:15	3:39:15		+ 32m					4.2								Overcast
-6	δ Sco				3:54:30	3:55		-2h05m					2.21								
-7	δ Oph				4:09:20	4:11:35		+2h10m													
-8	22 Sco				4:28:30	4:32:35		+2h14m					4.65								
-9	ω Sco				4:37:45	4:39:45		+2h45m					3.91								
-10	β Aqr				5:16:00	5:18:30		-2h					3.73								
2537-1	AR PAV			8-7	3:30	4:31			CIRRUS			120/7.0	9.8								Misidentified?
2538-1	R AQL				4:55	5:36						67/5.05	7.2								
-2	R AQL				5:36:20	6:02															
-3	R AQL				6:02:40	6:20															
-4	SKY				6:21	6:51															FAILED TO OPEN DARK SLIDE OR OVERLAPPED
2537-2	AG PEG				8:36	9:32														WITH 2535-37	(FIRST AG PEG EXPOSURE WAS A MISTAKE, Approx. 20 minutes)
2539-1	RW HYA			9-7	0:33:10	1:01			CLEAR												IT
-2	BD-21357.3				1:33	3:30															
-3	AS 221				4:13	6:14															MISIDENTIFIED
-4	R AQR				7:10:50	7:49:30															
-5	RR TEL				8:28								~12.5								
2540-1	RW HYA			10-7	1:06:48	1:30			CIRRUS												
-2	HD 330036				1:47	3:00															
-3	KS OPH				3:17	4:29															
-4	RR TEL				4:47	7:00															
-5	CD-4314304				8:08	9:48							~12.8								Stopped early clouded over.

NUMBER	OBJECT	R.A.	DEC.	DATE U.T	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG.	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2541-1	RW HYA				2:23:40	4:36		~5h	CIRRUS												
-2	AR HYA				5:13	6:15		2h30													
-3	HR PEG				6:43	CLOSED OVER															
2542	NGC 2516	8h 11.7m	-37° 35.1'	3-4 Feb/83									B							LHW13	= BRADFIELD FOR FITZGERALD
-1	-682					2:43	40s		2-3"		100μ/.8		6.42								
-2	-477					3:04	8m0s						9.45								VARIABLE
-3	-476					3:15	6m10s						9.18								⅜ CIRRUS
-4	-469					3.33	10m10s						9.72								ALL
-5	-448					3:46	5m10s						8.99								NIGHT.
-6	-540					4:09	7m						8.89								CLOSE DOUBLE (BASE BRIGHTER COMPONENT.
-7	-544					4:20	2m30s						8.15								MOON -
-8	-575					4:29	40s				100μ/.8		6.51								RISE.
2543	-9	10hr 26.6m	-57° 32'	3-4 Feb	6:15	7:12	58m				100μ/.8		11.47								TOO LATE (SUN)
2544	Cr 240-20 (collinder)	11hr 10.7m	-60° 04'	8-9 Feb	7:11	7:22	11m	0hr 44m			100μ/.8		9.27								
	-19	11hr	-60°	"	7:32	8:31	59m	1hr 53m					11.66								B-V = 1.35 Reasonable expose v faint star. junk from spectr. promise.
	-39	11hr 10.6m	-60° 18'	"	8:39	9:03	27m	2hr 25m					10.37								
	-25	11hr	-60°	"	9:12	9:30	18m	2hr 43m					9.99								
2545	COR 240 -40	11hr	-60°	9-10 Feb	5:26	5:53	27m	-0hr 42m	2"				10.49								
	-42	11hr 10.3m	-60° 23'	"	6:00	6:54	54m	+0hr 20m					11.25								all marked by front.
	-23			"	7:04	7:14	10m	+0hr 40m					9.72								
	Tr 18 -2	11hr 10.3m	-60° 35'	"	7:27	8:55	1hr 28m	2hr 21m					11.85								Star rest
2546	NGC 1662	4h 47.4	+10° 57.6	10-11 Feb																	Here is plateau Nicholl in IT. (was dark)
	-10				1:40	2.14	25m (interruptions)	~1hr 6'			100 .6		11.49								
	NGC 2169 -12	6hr 6.8m	+13° 56'										10.83								but figure from one thr s/o, shifted
	COR 240 -19	11hr 12.1'	-60° 04'		5 46	6:13	27m	-0hr 19m					10.66								
	-23				6:19	6:30	11m	EC°					9.72								
	-25				6:35	6:50	15m	+19m					9.99								
	-39				6:56	7:17	21m	+45m					10.39								
	-42				7:21	8:08	47m	1hr 37'					11.20								
	-40				8:15	8:39	24m	2hr 28'					10.49								

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)
PAGE 376
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG	SP.	COMP KIND	COMP EXP	CALIB.	EMUL	DEV	OBS.	REMARKS
	COR 240 -38	11hr 12'	-60° 04'	10-11 Feb.	8:46	9:20	30 min	2hr 49'					(B) 10.76							LHWB	This plate perfectly exposed.
2547	NGC 1662 -16	4hr 48'	+10° 55'	11-12 Feb/83	1:05	2:12	1hr 7min	2hr 11'					11.55								
	NGC 2287 -56	6hr 46.3'	-20° 44'		2:25	2:46	21 min	0hr 43'					10.12								
	(F-H) -1				2:59	3:06	7 min	+1hr 04'													S component } ~5" double
	-1				3:08	3:16:30	8m 30"	+1hr 14'													N component }
	-23				3:49	4:04	15 min	+2hr 02'													SE component } ~8" double
	-23				4:05	4:27	22 min	+2hr 25m													NW component }
	-54				4:38	5:18	40 min	+3hr 16m					10.69								interruptions; Tone exp ~ 25 min
	NGC 2546 -18	8hr 11.7'	-37° 35.1'		5:32	7:19	1hr 47m	+3hr 51m					12.17								
2548	NGC 5316 -4	13hr 52.3m	-61° 45'		8:09	9:26	1hr 17m	+0hr 19m					11.78								Sunrise
2549	NGC 1662 -110	4hr 47.4m	+10° 54.6'	~~11/12~~ ~~12/13~~ Feb 12/13	1:22	1.38	16m / 15m	1hr 38m					10.08								Rotated slit 5° (interference)
	-107	"	"		1:54	2.24	30m / 30m	2hr 24m					~10.5								
	NGC 2169 -10	6hr 08.0m	+13° 47.8'		2:34	2.48	~15m / 15m	1hr 27m					10.10								interruption
	-12	"	"		3:06	3.37	31m / 33m	2hr 17m													5° Barrel rotation
	~~NGC 2343 -15~~	~~7hr 07'~~	~~-10° 34'~~										~~12.44~~								DID NOT DO.
	Bo -4 #7	7hr 31m	-17° 13'		3:58	6:22	2hr 24' / 2hr 20'	3hr 39m					12.36								
	TR 18 #7	11hr 11m	-60° 33'		6:50	8:13	83m / 88min	1hr 50m					11.96								
	Collinder 240 #38	11hr 10m	-60° 25'		8:24	9:06	42m / 29m	2hr 45m					10.76								interruptions → ~ 30 min
	-21	"	"		9:13:20	9:20:20	7min / 8min	2hr 59m					9.42								
	-3	"	"		9:28	9:30	90s / 90s	3hr 06m					7.56								Sun rise
2550	NGC 2546 -20	8hr 11.7'	-37° 35'	20/21 Feb			23m / 23m	-1hr 24m					10.47								
	-20						52m	-0hr 10m					10.47								Accidental Double take.
	-13						~~29~~ 35 / 29m	+0hr 37m					10.81								
	-355						12m / 12m	+0hr 57m					9.90								
	-353						7m / 7m	+1hr 09m					8.99								
	-354						20m / 11m	+1hr 30m					9.75								
	-105						14m / 11m	1hr 58m					9.78								Rotate slit 12° (INTERFERENCE)
	-698						6m / 6m	2hr 12m					9.07								
	-6						81m / 78m	3hr 54m					11.81								
	NGC 4463 #8	12hr 28m	-64° 40'				134m / 110m	+2hr 32m					12.27								MAY BE SOME DAWN INTERFERENCE

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	LST and H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (B)	SP V Vsini	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2551	NGC 2546 -54	8^h12^m	$-37°35'$	21/22 Feb/83			22m / 21m	-1^h54^m					10.46							LAWD	possible int. K-line F5II(?)
	-43						25m / 24m	-1^h22^m					10.61								
	-68						28m / 23m	-0^h45^m					10.59								
	-89						22m / 21m	-0^h16^m					10.45								
	-87						41m / 36m	$+0^h32^m$					10.70								
	-2						55m / 52m	$+1^h45^m$					11.43								
	Bo 10-23	10^h41^m	$-59°03'$				27m	$+0^h28^m$					?								B = 9.5 ? Also comp. HD 96825
	IC 2581 -36	10^h27^m (1965.0)	$-57°32'$				3^h17^m / 3^h10^m	$+4^h26^m$					12.65								
2552	HR 1214	$3^h53^m00^s$	$-34°46'55''$	FEB. 24/5/83	00:24:00	00:45:00	21m /	6h19 /	1½" / CLEAR	3.22	RV decker 5 40μm	120 / 8.30	V 5.11	B6V 65	Ne-A	2 sec	30 @ 5V ± WR25	1038-E	M-S(15m)	IKS	Hα for PARKER
	HR 2149	$6^h03.7$	$-32°10$	"	00:51	01:25½	34½m /	7h00 /	"				5.65	B2.5V 115							
	HR 2282	$6^h19.7$	$-30°03$	"	01:32	01:35	3m /	7h00½ /	"				3.02	B2.5V 45							
	HR 3084	$7^h52.0$	$-38°49$	"	01:43	01:55	12m /	7h29½ /	"				4.49	B2.5V 180							
	HR 3343	$8^h27.3$	$-35°03$	"	02:02	02:39	37m /	8h13½ /	"				5.75	B3V 165							
	HR 3462	$8^h41.7$	$-48°02$	"	02:44	03:15	31m /	8h49 /	1½" / CLEAR				5.51	B1.5Vn 370							CROWDED FIELD... STAR NEAR CENTER & NORTH OF "OTHERS"
	HR 3672	$9^h13.5$	$-44°05$	"	03:20	04:01	41m /	9h26 /	1¾" / ~50% CIRRUS				5.85	B6IV 260							
	HR 4205	$10^h43.5$	$-63°52$	"	04:06	04:22½	16½m /	9h57½ /	1¾" / ~30% CIRRUS				4.82	B4IVn 295							
	SKY	~"	$-63°49$	"	04:25	04:41½	16m /	10h16½ /	? / SIMILAR TO PREV.				—	—							
	HR 4732	$12^h25.6$	$-51°21$	"	05:38	05:53¾	15¾m /	11h29 /	½" / CLEAR				4.82	B3Vn 245							
	HR 4757	$12^h29.0$	$-16°25$	"	06:03	06:06	6m /	11h31 /	"				2.95	B9Vn 160							
	HR 4848	$12^h45.4$	$-56°24$	"	06:14	06:28	14m /	12h03 /	¼" / CLEAR				4.69	B3V 75							
	HR 5354	$14^h18.3$	$-45°59$	"	06:35	06:40	5m /	12h15 /	½" / "				3.55	B2.5V 235							
	HR 5395	$14^h25.0$	$-45°09$	"	06:47	06:59½	12⅓m /	12h36 /	"				4.56	B2IV 20							
	HR 5576	$14^h58.1$	$-42°02$	"	07:06	07:09½	3½m /	12h45 /	"				3.13	B2IV 25							
	comp.	—	—	"	—	—	2s /	—	—				—	—							
2553	HR 5695	$15^h20.3$	$-40°35$	FEB. 24/5/83	07:26	07:30	4m /	13h05 /	½" / CLEAR	3.22	RV decker 40μm	120 / 8.30	V 3.22	B1.5IV 225	Ne-A	2 sec	30 @ 5V ± WR25	1038-E	M-S(15m)	IKS	
	HR 5712	$15^h22.1$	$-36°48$	"	07:36	07:48	12m /	13h24 /	"				4.54	B4V 200							
	HR 5764	$15^h32.0$	$-16°48$	"	07:55	08:25	30m /	14h00 /	"				5.50	B2Vn 270							
	HR 5885	$15^h49.9$	$-25°42$	"	08:32	08:45	13m /	14h21 /	"				4.64	B1.5Vn 310							
	HR 5902	$15^h52.3$	$-20°07$	"	08:51	09:10	19m /	13h36 /	"				5.03	B2.5V 300							
	comp.	—	—	"	—	—	2s /	—	—				—	—							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1983·0	DEC. 1983·0	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.*	L.S.T. MID. END	SEE / TRANS.	CAM. FOCUS **	SLIT	GRATING / TILT	MAG V	SP	COMP KIND	COMP EXP.	CALIB.	EMUL	DEV	OBS	REMARKS
2554	HR 1214	03h 53·0	-34° 47	FEB. 25-26 '83	00:20	00:41	21m	6h19	1¾"/CLEAR	3·22	RV decker 2 40μm	120/8·30	5·11	B6V 65	Ne-A	2 sec	30" @ 6V 2 WR25	103a-E 2 GG14(3mm)	M-S(15m)	IKS	Hα for BARKER
	HR 2149	06h 03·7	-32° 10		00:46	01:20½	34½m	6h59	"				5·65	B2·5V 115							
	HR 2282	06h 19·7	-30° 03		01:26	01:29	3m	7h07	"				3·02	B2·5V 45							
	HR 3084	07h 52·0	-38° 49		01:34	01:46	12m	7h24	"				4·49	B2·5V 180							
	HR 3343	08h 27·3	-35° 03		01:51	02:28	37m	8h07	"				5·75	B3V 165							
	HR 3462	08h 41·7	-48° 02		02:32	03:03	31m	8h41	"				5·51	B1·5Vn 370							
	HR 3672	09h 13·5	-44° 05		03:06	03:49	42m	9h28	"				5·85	B6IV 260							
	HR 4205	10h 43·5	-63° 52		03:55	04:12	17m	9h51	"				4·82	B4IVn 295							
	HR 4732	12h 25·6	-51° 21		04:16	04:33	17m	10h12	"				4·82	B3Vn 245							
	HR 4757	12h 29·0	-16° 25		04:38	04:41	3m	10h20	"				2·95	B9Vn 160							
	HR 4848	12h 45·4	-56° 24		04:47	05:01	14m	10h40	"				4·65	B3V 75							
	HR 5354	14h 18·3	-45° 59		05:06	05:12	6m	10h51	2"/CLEAR				3·55	B2·5IV 235							
	HR 5395	14h 25·0	-45° 09		05:18	05:32	14m	11h11	≥2"/10% CIRRUS				4·56	B2IV 20							
	HR 5576	14h 58·0	-42° 02		05:41	05:48	[7m]	11h27	"				3·13	B2IV 25							
	HR 5695	15h 20·2	-40° 35		05:55	06:00	5m	11h39	2"/CLEAR				3·22	B1·5IV 225							
	COMP.	—	—		—	—	2s	—	—				—	—							
2555	HR 5906	15h 52·9	-24° 29	"	06:54	07:31	37m	13h10	¾"/CLEAR	"	"	"	5·39	B6IVn 275	"	"	"	"	"	"	"
	HR 5953	15h 59·3	-22° 34		07:37:00	07:38:45	1m45s	13h17	"				2·32	B0·5IV 180							
	HR 5987	16h 05·5	-36° 45		07:43	07:53	10m	13h32	"				4·23	B2·5Vn 320							both exp'd @ adv. plate ?
	HR 6028	16h 11·2	-27° ~~53~~		08:02	08:15	13m	13h54	"				~~4·59~~ 6·61	~~B2·5V~~ B2V 225 ~~315~~							
	HR 6083	16h 21·2	-49° 32		08:18	08:44	26m	14h24	1½"/5% CIRRUS				5·33	B6IV 210							
	HR 6141	16h 29·2	-25° 05		08:47	09:03	16m	14h43	1½"/5% CIRRUS				4·79	B2V 235							
	HR 6165	16h 34·8	-28° 11		09:05:30	09:08:00	2½m	14h47	"				2·82	B0V 20							
	HR 6247	16h 50·7	-38° 01		09:11	09:14	3m	14h54	"				3·08	B1·5V+ 235							
	HR 6527	17h 32·4	-37° 06		09:16	09:17	1m	14h57	"				1·63	B2IV+ 145							
	COMP.	—	—		—	—	2s	—	—				—	—							

* - with the exception of [], all exposures acceptable, but ~⅔ of "ideal".

** - gives a range of ~ ±35Å about Hα, ¢ ~ 2Å resolution @ ~115Å/mm ('plate limited'; ie - ¢ KODAK 2415 split is resolved).

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A. 1983.0	DEC 1983.0	DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR.	LST. ~~HR~~ END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG V	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2556	HR 1214	$03^h\,53.0$	$-34°\,47$	FEB. 26/7 '83	00:13	00:46	$6^h\,28$ (-3)	33^m (J)	1½"/DIFF. CIRRUS	3-22	RV dedav @ 40μm	120/8-30	5-11	B6V 65	Ne-A	2" sec	30"B6T @WR25	103a-E @GG14(3mm)	M-8(15m)	IKB	Ha for BARKER
	HR 2282	$06^h\,19.7$	$-30°\,03$		00:51:30	00:56	$4\frac{1}{2}^m$ (-3)	$6^h\,38$	"				3-02	B2.5V 45							
	HR 3343	$08^h\,27.3$	$-35°\,03$		01:05	02:03	58^m (-2)	$7^h\,45$	1½"/CLEAR				5.75	B3V 165							
	HR 3672	$09^h\,13.5$	$-44°\,05$		02:10	03:12	62^m (-2)	$8^h\,55$	1¼"/5% CIRRUS				5.85	B6IV 260							
	HR 4732	$12^h\,25.6$	$-51°\,21$		03:17	03:43	26^m (-2)	$9^h\,26$	1¼"/CLEAR				4.82	B3Vn 245							
	HR 4848	$12^h\,45.4$	$-56°\,24$		03:51	04:13	22^m (J)	$9^h\,56$	"/~"				4.65	B3V 75							
	HR 5395	$14^h\,25.0$	$-45°\,09$		04:17	04:48	31^m (-2)	$10^h\,31$	"/50% CIRRUS				4.56	B2IV 20							
	HR 5695	$15^h\,20.2$	$-40°\,35$		04:55	05:02	7^m (-2)	$10^h\,45$	"/N CLEAR				3.22	B1.5III 225							plate not developed?
	HR 5764	$15^h\,31.9$	$-16°\,48$		05:08	05:24	16^m (~⅓)	$11^h\,07$	"				5.50	B2Vn 270							
	~~HR 5902~~	~~$15^h\,52.3$~~	~~$-20°\,07$~~										5.03	B2.5V 200							
	HR 5695				05:27	05:33	6^m (+2x)	$11^h\,16$	"												
	HR 5764				05:38 → 05:48	~~05:52~~ → 07:56	(6+46)m 56 (+4x)	$13^h\,39$	⅛"/MUCH CLOUD												HALTED DUE TO CLOUDS.
	~~HR 5902~~	~~$15^h\,52.3$~~	~~$-20°\,07$~~										5.03	B2.5V 200							
	HR 5953	$15^h\,59.3$	$-22°\,34$		07:59½	08:02	$2\frac{1}{2}^m$ (+2x)	$13^h\,46$	¼"/N CLEAR				2.32	B0.5IV 180							
	HR 6165	$16^h\,34.8$	$-28°\,11$		08:07	08:11	4^m (-2x)	$13^h\,54$	½"/DIFF. CLOUD				2.82	B0V 20							
	HR 6247	$16^h\,50.7$	$-38°\,01$		08:19	08:24	5^m (+2x)	$14^h\,07$	½"/N CLEAR				3.08	B1.5V+ 235							The one that's SW. and ~brighter !!
	HR 6875	$18^h\,23.0$	$-44°\,07$		08:32	09:12	40^m (-2x)	$14^h\,56$	1¼"/DIFF. CLOUD				5.25	B2.5Vn 330							
	HR 6527	$17^h\,32.4$	$-37°\,06$		09:14¾	09:16	$1\frac{1}{4}^m$ (SW)	$15^h\,00$	1½"/N CLEAR				1.63	B2IV+ 145							
	COMP.	—	—		—	—	25	—	—				—	—							
2557	HR 2149	$06^h\,03.7$	$-32°\,10$	FEB. 27/8 '83	02 41	03:35	54^m ✓	$09^h\,22$	1¼"/CLEAR	3-22	RV dedav @ 40μm	120/8-30	5.65	B2.5V 115	Ne-A	4 sec	30"B6T @WR25	103a-E @GG14(3mm)	M-8(15m)	IKB	
	HR 3084	$07^h\,52.0$	$-38°\,49$		03:39	03:57	18^m ✓	$09^h\,44$	½"/ "				4.49	B2.5V 180							
	HR 3462	$08^h\,41.7$	$-48°\,02$		04:01	04:48	47^m ✓	$10^h\,35$	"/ "				5.51	B1.5Vn 370							
	HR 4205	$10^h\,43.5$	$-63°\,52$		04:53	05:18	25^m ✓	$11^h\,05$	"/ "				4.82	B4IVn 295							
	HR 4757	$12^h\,29.0$	$-16°\,25$		05:27	05:31	4^m ✓	$11^h\,18$	"/ "				2.95	B9Vn 160							
	HR 5354	$14^h\,18.3$	$-45°\,59$		05:35	05:43	8^m ✓	$11^h\,30$	"/ "				3.55	B2.5IV 235							
	HR 5576	$14^h\,58.0$	$-42°\,02$		05:47	05:53	6^m ✓	$11^h\,40$	¾"/ "				3.13	B2IV 25							
	HR 5712	$15^h\,22.1$	$-36°\,48$		05:58	06:19	21^m ✓	$12^h\,06$	"/ "				4.54	B4V 200							
	HR 5885	$15^h\,49.9$	$-25°\,42$		06:23	06:46	23^m ✓	$12^h\,33$	½"/				4.64	B1.5Vn 310							
	HR 5902	$15^h\,52.3$	$-20°\,07$		06:50	07:21	31^m ✓	$13^h\,08$	1¼"/ "				5.03	B2.5V 200							
	~~HR 5987~~	~~$16^h\,05.5$~~	~~$-36°\,45$~~										~~4.23~~	~~B2.5Vn 320~~							

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (B)	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2558	NGC 3572 -17	11hr 09m	-60° 08'	3/4 MAR/83	5:44	8:20	15m / 130m+	+3hr 14m	POOR		40μ		12.42							LHWB	V. BAD SEEING
	-4				8 29	9:30	60m	+4hr 24m			40μ		11.10								WRONG SLIT
2559	NGC 2343 -15	7hr 07m	-10° 34'	4/5 MAR	1:37	4:22	2hr 45m / 2hr 4m	+3hr 22m	GOOD		100μ		12.44								
	NGC 3572 -17	11hr 09m	-60° 08'		4:37	6:48	2hr 11m / 2hr 10m	+1hr 46m					12.42								
	NGC 4463 -15	12hr 28m	-64° 40'		7:00	9:38	2hr 38m / 2hr 15m	3hr 17m					12.47								
2560	NGC 2287 -59	6hr 47m	-20° 44'	5/6 Mar	0:40	1:25	45m	0hr 47m					11.24								
	-62				1:29	2:21	34m	1hr 44m					10.99								
	-76				2:28		45m						11.26								
	NGC 2546 -36b	8hr 11.7m	-37° 35'		3:35	4:45	70m / 62	2hr 44m					11.52								
	NGC 3572 -20	11hr 09m	-60° 08'		5:10	7:00	110m / 95m	2hr 02m					12.07								~10-15% interference from #30
	NGC 5316 -8	13hr 53m	-61° 45'		7:11	8:09	58m / 30m	0hr 27m					10.88								interrupted
	-75				8:28	9:30	62m / 50m	1hr 48m					11.38								
	-103				9:37	9:54	17m / 27m	2hr 13m					10.75								DAWN
2561	NGC 2343 -19	7hr 07m	-10° 34'	6/7 Mar	0hr 50m	3:33	164m / 160m	2hr 41m					12.44								
	Tr 18 -2	11hr 11m	-60° 34'		3:45	5:21	96m / 75m	0hr 25m					11.85								SOME LIGHT CIRRUS
	NGC 4463 -2	12hr 28m	-64° 40'		5:30	7:15	105m / 94m	1hr 02m					12.06								
	-4				7:20	8:24	64m / 60m	2hr 11m					11.58								
	NGC 5281 -18	13hr 45.4m	-62° 48'		8:34	9:16	42m / 40m	1hr 46m					11.18								
	-17				9:18	9:53	35m / 39m	2hr 24m					11.14								DAWN
2562	Bo4 -25	7hr 30.8m	-17° 13'	8/9 Mar	0:50	2:21	91m / 82m	1hr 12m					11.92								THIS PLATE FOGGED:
	-24				2:23	4:17	114m / 110m	3hr 08m					12.23								
	IC 2581 -168	10hr 27m	-57° 32'		4:27	5:18	51m / 50m	1hr 14m					11.39								INSUFFICIENT TIME DELAY AFTER (~20m)
	NGC 5316 -3	13hr 53m	-61° 45'		5:35	7:20	105m / 100m	-0hr 10m					11.68								TURNING ON INTENSIFIER (DISC'D DEAD BATTERIES)
	NGC 6193 -29	16hr 41m	-48° 43'		7:37	8:14	32m / 27m	-2hr 04m					10.74								
	-27				8:28	9:13	45m / 33m	-1hr 05m					10.94								
	-26				9:17	9:40	23m / 19m	-0hr 38m					10.34								NOT YET DAWN
2563	NGC 1502 -101	4hr 47.4m	+10° 54.6'	9/10 Mar	0:10	1:04	54m / 43m	2hr 43m					11.05								LOW
	Bo4 -28	7hr 30.8m	-17° 13'		1:19	3:40	2hr 21m / 2hr 20m	2hr 36m					12.48								
	IC 2581 -25	10hr 26.6m	-57° 32'		3:56	6:15	2hr 19m / 2hr 20m	2hr 14m					12.49								
	Tr 18 -17	11hr 10.3m	-60° 35'		6:30	7:15	45m / 45m	2hr 32m					11.29								

UNIVERSITY OF TORONTO

LAS CAMPANAS OBSERVATORY (24-INCH)

GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG (B)	SP.	COMP. KIND	COMP. EXP	CALIB	EMUL	DEV	OBS	REMARKS
253	NGC 6193	16hr 41.0m	-48° 50'		7:26	8:14	48m / 52m	-2hr 00m			100μ		11.43							LHWB	CONTINUED FROM PREVIOUS PAGE
	-20																				
	-15				8:19	9:11	52m / 45m	-1hr 03m					11.31								
	-18				9:14	9:46	32m / 30m	-0hr 28m					10.87								
254	Bo4 -10	7hr 30.8m	-17° 13'	10/11 Mar/83	0:36	2:30	114m / 110m	+1hr 29m	~2"				12.24								
	NGC 2546 -32	8hr 11.7m	-37° 35.1'		2:45	4:25	100m / 100m	+2hr 43m					12.13								NGC 2546
	NGC 3372 -25	11hr 09.5m	-60° 08'		5:06	7:13	127m / 120m	+2hr 34m					12.32								SKY vertical to axial #1
	NGC6193 -22	16hr 41.0m	-48° 50'		7:29	8:29	60m / 45m	+1hr 41m					11.28								some cirrus set in
	-21				8:33	9:38	65m / 58m	-0hr 32m					11.66								
255	Bo4 -29	7hr 30.8m	-17° 13'	11/12 Mar	0:48	2:36	108m / 100m	+1hr 39m					12.19								
	IC 2581 -16	10hr 26.6m	-57° 32'		2:56	5:02	126m / 120m	+1hr 09m					12.05								
	-20				5:09	6:39	90m / 80m	+2hr 47m					11.90								CLOUDS ROLLED IN
256	NGC 2546 -27	8hr 11.7m	-37° 35.1'	12/13 Mar	0:26	3:16	170m / 160m	+1hr 42m					12.65								
	IC 2581 -55	10hr 26.6m	-57° 32'		3:27	5:06	99m / 90m	+1hr 20m					12.04								possible interference from #56 (1st Likely) ,6 more interference #1
	-52				5:28	7:35	140m	+3hr 47m					12.21								
	NGC 6193 -16	16hr 41.0m	-48° 50'		7:49	9:15	86m / 43m	-0hr 47m					11.25								POOR TRACKING
	-17				9:18	9:48	30m / 25m	-0hr 14m					10.68								
257	NGC 2546 -45	8hr 11.7m	-37° 35.1'	13/14 Mar	1:17	2:02	45m / 56m	+0hr 32m					11.10								
	-74				2:15	3:38	83m / 60m	+2hr 08m					11.57								FAIR TRACKING
	IC 2581 -24	10hr 26.6m	-57° 32'		3:53	6:11	138m / 120m	+2hr 26m					12.32								
	Tr 18 -5	11hr 10.3m	-60° 35'		6:25	8:00	95m / 88m	+3hr 32m					11.75								
	NGC 5749 -9	14hr 47.2m	-54° 26'		8:13	9:51	98m / 86m	+1hr 47m					11.48								B-V = 1.26
258	NGC 2362 -22	7hr 17.7m	-24° 53'	14/15 Mar	1:00	2:30	90m / 82m	+1hr 56m					11.94								
	NGC 2546 -127	8hr 11.7m	-37° 35.1'		2:41	(3:03)	22m	(+1hr 36m)					10.50								
	-116				3:12	4:17	65m / 60m	+2hr 51m					11.59								
	Tr 18 -20	11hr 10.3m	-60° 35'		4:29	(5:54)	(85m) / 80m	(+1hr 30m)					11.91								
	NGC 5749 -8	14hr 49.2m	-54° 26'		6:08	7:17	69m / 52m	-0hr 46m					11.43								Four guiding.
	-3					8:22	58m	+0hr 20m					11.53								
	-19				8:34	9:12	38m / 32m	+1hr 07m					10.70								B-V = 1.03
	-4				9:14	9:48	34m / 32m	+1hr 46m					11.01								DAWN
259	NGC 3572 -21	11hr 09.5m	-60° 08'	15/16 Mar	3:06	5:00	114m / 100m	+0hr 40m					12.07								CLOUDS TO ~2 DEG

NUMBER	OBJECT	R.A.	DEC.	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (B)	SP	COMP. KIND	COMP. EXP	CALIB.	EMUL	DEV	OBS	REMARKS
	NGC 4463 -16	12hr 28.4m	-64°40'	15/16 Mar/83	5:09	9:52	283m / 280m	+4hr 14m	~2"		100μ		13.25							L+W B	
2570	NGC 5606 -6	14hr 26m	-59°32'	16/17 Mar	8:03	9:55	112m / 110m	+2hr 24m					12.26								
2571	NGC 2546 -174	8hr 12m	-37°35'	17/18 Mar	0:19	0:52	33m / 31m	-0hr 23m					10.90								
	-175				0:58	2:16	78m / 74m	+1hr 01m					11.81								
	-82				2:25	3:28	63m / 60m	+2hr 14m					11.60								
	NGC 3572 -19	11hr 09.5m	-60°08'		3:51	6:22	161m / 150m	+2hr 10m					12.57								
	NGC 5606 -5	14hr 26.2m	-59°32'		6:30	7:18	48m / 43	-0hr 10m					11.22								MV #
	NGC 5617 -81	14hr 28m	-60°37'		7:32	8:32	60m / 52m	+1hr 03m					11.31								POSSIBLE V Slight contamination #28
	-125				8:46	7:57	71m / 70m	+2hr 28m					11.43								B-V = 1.25
FOCUS + EXP TEST		K HYA 939.3	-14°15	15/16 APR	1 35	1:47	1½, 3, 6	2.85 .85 .90	1"	2.85	50μ	5.05	4.9	B5	NeA	30s	-	IIa-O (Backed)	MS	16°C	Ra
	HD 79241	9 10.5	-39°08		1 58 30	2:42	6, 12, 24		1"	"	"	"	6.5	B9							
LC	Focus + Tilt test 16 APRIL		2.65 - 2.95 by .05's				Tilt 4.40 - 5.14 by .04's									60s	-	IIa-O UNBAKED	M-S	19°C	
LC 2572	W CMa	7 13.6	-26°43	17/18 APR	2357	0001	1½, 2 / 3		~1" cirr	2.70	50μ / 1.2	67 / 5.05	3.7	B3	NeA	30s	-	IIa-O Backed	M-S	Kai	clouds
	HD 81809	9 26.5	-5°58		0008	0048	40m / 70						6.0	G2							↓
	BS 2874	7 29.0	-22°59		0053	0056	3m / 5	2 27w					4.5	A5							
	HD 67905	8 07.5	-39°24		0112	0222	70 / 55	3 12w	1"				7.8	A0							clear
Over lapped	HD 86992	9 59.9	-39°18		0225	0345	80m / OK	2 46w	1"+				8.0	B9	OVERLAPPED						
Sco	HD 139094	15 35.8	-26°26		0353	0443	50m / OK	1 52E					7.45	B7							13°C 42% RH
	BS 5801	15 36.2	-26°13		0446	0501	15m ✓	1 36E					6.2	B7							
	HD 139486	15 37.8	-19°40		0536	0636	60m ✓	1E					7.7	B9							
	HD 141180	15 47.4	-27°32		0639	0809	90m ✓	1 22w					8.2	B8							
	HD 141774	15 50.3	-20°31		0815	0925	70m ✓	2 36w					7.8	B9							
LC 2573	W CMa	7 13.6	-26°43	18/19	2349	2352	1½m ✓	1 42w					3.7	B3							
	K Pup A	7 37.6	-26°44		2357	→	2½m ✓						4.3	B8							
	B	"	"		→	0002	2½m ✓	1 27w					4.4	B5n							
	HD 81809	9 26.5	-5°58		0008	0025	16m ✓	02w					6.0	G2V							

NUMBER	OBJECT	R.A.	DEC	DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR	H.A. END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2573	HD 72573	8 31.1	-39°51	18/19 APRIL	0034	0129	55m ✓	201 W	1" photon	2.70	50μ 1.2	67 5.05	7.6	A0	Neft	30s	—	IIa O(b)	M-S	Kai	13°C 40% RH
	HD 101215	11 37.1	-39°04		0139	0319	100m ✓	~1 W?					8.2	A0							
	HD 139094	15 35.8	-26°26		0333	0418	45m ✓	215 E					7.4	B7							See Pgm
	BS 5910	15 53.2	-27°18		0421	0434	13m ✓	216 E					6.1	B6							
	HD 142315	15 53.4	-22°44		0440	0508	28m	142 E	WRONG ★				6.9	B8							too faint? [illegible]
	HD 142805	15 56.0	-21°25		0529	0609	40m ✓	43 E					7.3	A0							
	HD 142884	15 56.6	-23°28		0611	0637	26m ✓	15 E					6.8	B9							
2574	BS 5942	15 57.4	-24°46		0646	0653	7 ✓	00					5.3	B5							Baking Procedure = ½ hour in
	HD 143567	16 00.6	-21°56		0657	0737	40 ✓	40 W					7.3	B9							Nitrogen
	HD 143608	16 01.0	-22°38		0740	0825	45m ✓	1 38 W					7.4	B9							then 2½ hrs in Vacuum
	BS 5988	16 04.9	-23°34		0827	0837	10m ✓	137 W					5.8	B8							at 65°C
	BS 6003	16 07.5	-23°38		0838	0849	11m ✓	146 W					5.9	B9							then flood with
	BS 5998	16 06.6	-24°24		0851	0907	16m ✓	205 W					6.3	B7							Nitrogen for Storing.
	HD 145102	16 08.9	-26°52		0909	0932	23m ✓	228 W					6.6	B9							
	HD 145353	16 10.2	-27°06		0934	1007	33m ✓	301 W					7.0	B9							
	12 Sco A	16 11.0	-28°22		1009	1019	10m 20	313 W					5.7	B9+F2							12°C 41% RH
2575	K Hya	9 39.3	-14 15	19/20 APRIL 1983	2327	2333	6m ✓	59 E	1" photon				5.1	B5							4-28 safe on plate holder
	β Sex	10 29.3	-0°32		2336	2341	5m ✓	141 E					4.9	B6							
	BS 2874	7 29.0	-22°59		2346	2352	6m ✓	130 W					5.1	A5							
	HD 83916	9 39.2	-39°55		2357	0127	90m 140	54 W					8.1	A0							13°C 40% RH
	HD 105095	12 04.5	-39°02		0132	0312	100m ✓	14 W					8.2	A2							
	HD 142315	15 53.4	-22°44		0315	0400	45m ✓	247 E	1+				6.9	B8							See Pgm.
	ν Sco C	16 10.8	-19°25		0404	0444	40m ✓	220 E					7.0	B							
	D	"	"		0510	0610	60m ✓	54 E					7.7	B							
	HD 145554	16 11.1	-19°32		0610	0710	60m ✓	6 W	>1"				7.8	B9							
	145631	16 11.5	-19°27		0711	0736	25m 50	32 W					6.7	B9							tilt ok? NO
	145519	16 10.9	-19°01		0740	0920	100m ✓	~2h W					8.2	B9							
	BS 6066	16 15.7	-21°15		0922	0946	24 ✓	238 W					6.6	B9							12°C 42% RH

NUMBER LC	OBJECT	R A	DEC.	1983 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR	H A. END	SEE / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2576	HD 89677	10 18.8	-39°33	20/21 APRIL	0044	0144	60 ✓	~0	1" cirrus	2.70	50μ 1.2	67 5.07	7.5	B9	NeA	30s	—	IIa-O(b)	M-S	Kai	
	93837	10 48.0	-39°01		0148	0248	60m ✓	1 10 W					7.5	A0							14°C 42% RH clearing
	γ Hya	13 17.3	-23°01		0253	0256	2½ 2	1 12 E					3.9	G8							
	BS 5859	15 44.4	+5°31		0302	0315	13 ✓ streaky	3 20 E	clear				5.5	A0							
	12 Sco A	16 11.0	-28°22		0320	0330	10 ✓	3 30 E					5.7	B9+F2							
	HD 145631	16 11.5	-19°27		0334	0449	75m ✓	2 14 E					7.7	B9							
	146332	16 15.6	-29°43		0450	0555	65m ✓	1 10 E					7.8	B5						perfect	exposure? seeing 1" "by the graph" +10% [illegible]
OVERLAPPED	(A1) 146706	16 17.2	-23°14		0558	0703	60m ?	3 E					7.7	B9							
	147010	16 18.8	-20°01		0708	0803	55m ?	57 W					7.6	Ap.							
	A8 147196	16 20.0	-23°40		0807	0850	40m ✓	1 46 W	1"+ some clouds.				7.2	B8							
	A17 147703	16 23.1	-27°07		0858	1003	65 ✓	2 51 W					7.65	B9							12°C 44% RH
2577	HD 75500	8 47.4	-39°17	24/22 APRIL	2324	0001	37m ✓	28 E	1" photom			5.08	7.2	B9				Subarc second seeing!			15°C 42% RH
	~~75654~~	~~8 48.8~~	~~-39°03~~		~~0005~~	~~0031~~	~~26 33~~	~~57 W~~					~~6.8~~	~~A2~~	wrong ✓ / got HD 75445						
	79241	9 10.5	-39°08		0036	0054	18m 14	57 W					6.5	B9							"by graph" ox?
	81411	9 23.1	-39°17		0055	0122	28 24	1 12 W					6.7	A2							
	107202	12 18.1	-39°12		0125	0244	24 1 20 aborted - clouds.						8.5	A2							1" [illegible]
	γ Hya	13 17.3	-23°01		0502	0504	2 ✓	1 01 W					3.9	G8							
	HD 146706	16 17.2	-23°14		0510	0610	60 ✓ clouds	50 W					7.7	B9							
	BS 5859	15 44.4	+5°31		0618	0627	9 15 clouds.	1 E					5.5	A0							
2578	HD 91460	10 31.6	-39°46	24/25 APRIL	0045	0205	80m ✓	59 W	2" photom				7.5	B9				IIa-Ob - New Batch of plates			W = 35-50 MPH! 11°C 51% RH
	96844	11 07.3	-39°19		0208	0303	55 ✓	1 22 W	1"+				7.4	A0							
	99627A	11 26.0	-39°42		0306	0401	55 ✓	2 01 W	1"				7.5	A0							
	147010	16 18.8	-20°01		0410	0515	65 ✓	1 38 E					7.6	Ap.							Sco Pgm
	~~ρ Oph C~~	~~16 24.3~~	~~-23°22~~		~~0519~~	~~0619~~	~~60~~	aborted					~~7.6~~	~~B5~~							
2579	ρ Oph C	16 24.3	-23°22		0626	0720	55 ✓	22 W					7.6	B5							
	ρ Oph D	16 24.1	-23°26		0722	0752	30 ✓	58 W					7.0	B5							
	HD 147890	16 24.3	-29°23		0753	0903	70 ✓	2 05 W					7.9	B9							

NUMBER	OBJECT	R.A.	DEC.	1983 DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG (B)	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
Contd																					
2579	HD 148579	16 28.7	-25°07	24/25 APRIL	0905	1005	60 ✓	3.04W	1"	2.70	50µ 1.2	67 5.08	7.6	B9	NeA	30s	-	IIa-O6	M-5	Kai	☆ A31 T=13°C RH=45% W=20 MPH
2580	HD 63401	7 46.0	-39° 15	23/24 April	2347	0011	8.16 8 ✓		1" photometric	2.55-2.90 N .05% spots/		5.11	6.1	B9				IIa-O6 aked			T=13° RH=47% W=0
	BS 3314	8 24.7	-3° 51		0020	0021	1.3 m ✓	1.06N					3.9	A0				2h in forming gas @ 65°			
	~~HD 75870~~	~~8 58.1~~	~~-39° 59~~										~~B4~~	~~B3~~							
	HD 91460	10 31.6	-39° 46		0029	0059	30 m 35	4E					7.5	B9							
2581	HD 92274	10 40.7	-39° 14		0303	0333	90m ✓	2.22W	3"-1"	2.80			8.5	A0							var?
	HD 146029	16 B3.7	-22° 21		0337	0410	33m ✓	~2.38E	1"				7.4	B9							☆ B12
	BS 6142	16 12.4	-24° 23		0418	0432	14m ✓	2.11E	1"				6.4	B5							☆ B4
	BS 6059	16 13.6	-25° 26		0436	0446	10m ✓	1.58E					6.1	B7							☆ B11
	HD 146285	16 15.2	-24° 57		0448	0553	65m ✓	5.36E					8.2	B8							☆ B21
	146284	16 15.1	-24° 5		0555	0613	18m ✓	3.2E					6.9	B8							☆ B20
	BS 5859	15 44.4	+5° 31		0617	0623	6m ✓	9W					5.6	A0							
	d Sco	16 15.5	-28° 34		0625	0628	3m ✓	1.9E					4.8	A0							
	HD 148199	16 26.2	-29° 15		0631	0654	23m ✓	~1E					7.1	Ap							
	148594	16 28.4	-27° 52		0656	0716	20m ✓	1.7W					7.0	B8							☆ B44
	148860	16 30.4	-17° 41		0718	0818	60m ✓	1.19W					8.2	B9							
	σ Sco	16 12.1	-24° 06		0821	0826	5m ✓	~2'W					5.4	A5							
	HD 164514	17 59.7	-22° 54		0830	0930	60m ✓	5.9W					8.2	A5 Ia					T=14° RH=49% W=5		night ☆? looks orange.
	120Å/mm foam plate			26 APRIL	3.20	-3.41	key .03s	←			50µ .8	120 7.0			NeA	40s		IIa-O	M-5		15°C
2582	HD 72573	8 31.1	-39° 51	26/27 APRIL	2331	2341	2.3 4	4.2W	1" phot.	3.25	100µ .8	120 7.0	7.3	A0	NeA	30s		IIa-O	MWP2		
	72646	8 31.5	-39 39		2344	0010	8.16 20	1.11W					8.9	A0							
2583	72815	8 32.4	-39° 10		0049	0100	11m ✓	2.01W	1"				8.8	B9				IIa-O6	MWP2		
	72937	8 33.0	-39 63		0102	0111	9m ✓ ½						8.6	B9				2h in forming gas			140 46%
	87466	10 02.9	-39° 23		0114	0121	7m ✓						8.4	A2							
	88505	10 10.3	-39° 15		0123	0132	9m ✓ ½						8.6	A2							2 drifts

UNIVERSITY OF TORONTO
LAS CAMPANAS OBSERVATORY (24-INCH)

PAGE 386
GARRISON CLASSIFICATION SPECTOGRAPH

NUMBER	OBJECT	R A	DEC	1983 DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
contd 2583	HD 89677	10 18.8	-39°33	26/27 APRIL	0134	0139	3.3 / 3	N 50 W	1"	3.25	100μ .8	12" / 46	7.3	B9	NeA	30s	—	IIa-O	MWP2	Kai	FULL MOON
	91460	10 31.6	-39°46		0142	0049	2½ 3½ / 5	50 W					9.5	B9							
	91503	10 31.9	-39°38		0150	0155	5m / 5 cloudy	56 W					8.1	A0							1 drift
	91756	10 33.7	-39 25		0156	0203	7m / 9	1 02 W					8.4	A0							
	92774	10 40.7	-39°14		0204	0212	8m / 10	1 05 W					8.5	A0							
	96337	11 04.5	-39°23		0214	0227	13 / 15	55 W					8.9	A0		20s					usable?
2584	HD 145718	16 12.3	-22°25		0313	0330	17m ✓	3 10 E					8.9	A2		20s					B1
	145856	16 13.1	-22°22		0331	0353	22m ✓	2 47 E					9.2	A2							B7
	146029	16 13.7	-22 21		0354	0404	4½ m ✓	2 37 E					7.4	B9							B12
	145719	16 12.3	-27°20		0406	0418	12m ✓	2 21 E					8.6	A2							B2
	145778	16 12.6	-27°43		0420	0439	19" / 24	2 00 E					9.2	F2							B3
	145837	16 13 0	-27°44		0440	0520	40m / 50	1 20 E					9.8	A2							B6
	146236	16 15.0	-28°06		0522	0541	19m / 45	1 02 E					9.2	AC							B17
	146606	16 17.0	-27°59		0544	0548	4m / 3½	54 E					7.7	AO							B31
	146397	16 16.0	-27°27		0551	0626	35m / 40	16 E					9.8	A2							B25
	BS 6042	16 12.4	-24°23		0628	0630	1½m ✓	8 E					6.5	B5							B4
	HD 145810	16 12.8	-24°11		0631	0637	6m / 7	1 E					8.0	A0							B5
	145857	16 13 1	-24°05		0638	0650	12m / 14	11 W					8.7	A2							B8
	BS 6054	16 13.6	-25°26		0651	0652	1m ✓	13 W					6.1	B7							B11
2585	HD 146331	16 15.7	-25°48		0659	0707	8m / 5 cloudy	25 W					8.3	A0		20s					B23
	146330	16 15.7	-25°10		0709	0724	15m ✓	44 W					9.0	A2							B22
	146266	16 15.3	-25°00		0725	0735	10m ✓	55 W					8.6	AC							B18
	146285	16 15.2	-24°57		0736	0743	7m ✓	1 02 W					8.2	B8							B21
	146284	16 15.1	-24°15		0745	0747	2m ✓	1 06 W					6.9	B8							B20
	146437	16 16.2	-24°10		0748	0801	13m / 14	1 20 W					8.8	AO							B26
	146069	16 14.2	-23°41		0803	0820	17m wrong ★	1 36 W	HD 145836.				9.0	FC						(16 13.1)	B14 wrong B? yes
	146494	16 16.5	-23°17		0823	0840	17m / 18 ✓	1 59 W					9.0	A2							B28
	146367	16 15.9	-23°03		0843	0853	10m / 12	2 12 W					8.4	FC							B24

NUMBER cont'd	OBJECT	R A	DEC	1983 DATE U.T.	U.T EXP BEGIN	U.T EXP END	TOTAL / CORR	H A END	SEE / TRANS	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP.	COMP KIND	COMP EXP.	CALIB	EMUL	DEV	OBS	REMARKS
2585	HD 146282	1615.4	-23°03	26/27 APRIL	0855	0935	40m ✓	305W	1" clear	3.25	100μ .8	120/7.0	9.8	A5	Neat	20s	-	IIa-Ob	MWP2	Kai	B19
	146175	1614.8	-22°45		0937	0955	18 ✓	316W					8.9	A0							B16
	146457	1616.3	-22°51		0956	1013	17 ✓ 15	332W					8.7	A3					13°C 47% 10 MPH		B27
2586	HD 63967	748.8	-39°40	27/28 APRIL	2319	2323	4m 8	111W	1" clear				7.6	A2							T = 13° RH = 48% V = 2 MPH
	HD 64044	749.0	-39°42		2324	2328	4m 8	117W					7.6	A2							
	64138	749.7	-39°40		2329	2339	10 14	126W	clouds				8.4	B8							
	64804	753.0	-39°14		2343	0008	25m ax	155W					8.9	A2							companion contain on bottom?
	79241	910.5	-39°05		0014	0029	15m 5	056W					5.9	B9							
	~~81411~~	~~923.1~~	~~-39°17~~					too cloudy.					~~6.3~~	~~A2~~							
	91756	1033.7	-39°25		0208	0218	10m ~~clear~~ 30	120W	clear				8.5	Ap.							
	93334	1044.6	-39°39		0223	0233	10m 17	126W					8.5	A0							
	99627 A	1126.0	-39°42		0235	0239	4m ✓	50W					7.5	A0							
	101215	1137.1	-39°04		0241	0249	8m ✓	49W					8.2	A0							
	103029	1150.1	-39°29		0257	0305	14m	52W					8.8	A0							
	146590	1616.9	-22°50		0317	0336	19m 35	304E					9.7	F0							B30 wx
	147137	1619.9	-22°30		0341	0400	19m 27	242E					9.0	F0							B32 [illegible]
	147356	1621.4	-22°36		0404	0433	29 ~~clear~~	208E	clouds				9.6	A0							B33 [illegible]
																					~~B34~~
2587	147432	1621.9	-23°04		0446	0452	6m ✓	151E	"				7.8	A2							B34
	~~148185~~	~~1626.2~~	~~-22°08~~		~~0456~~				"				~~9.9~~	~~A0~~	aborted - clouds.						~~B34~~
	148153	1626.0	-27°09		0537	0545	8m 10	103E	clear				8.2	F2							B38
	148594	1628.9	-27°52		0548	0551	2½ ✓	100E					7.0	B8							B44
	150035	1638.3	-27°16		0553	0603	14 14	58E	repeat - too short				8.9	B9							B60
	149883	1637.3	-26°57		0606	0615	11m ✓	44E					8.6	B9							B56
	150035	1638.3	-27°16		0616	0630	14 ✓	30E					8.9	B9							B60
	149597	1635.7	-27°03		0632	0649	17m 27	9E					9.2	A0							B50
	~~146590~~	~~1616.9~~	~~-22°50~~		~~0652~~		~~27m~~		~~through clouds...~~				~~9.7~~	~~F0~~	aborted clouds too thick...						~~B30~~
	~~149367~~	~~1633.9~~	~~-26°26~~										~~8.6~~	~~B9~~				closing.			~~B46~~

NUMBER LC	OBJECT	R.A.	DEC.	1983 DATE U.T.	U.T. EXP BEGIN	U.T. EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP	CALIB.	EMUL.	DEV.	OBS.	REMARKS
2588	HD63967	748.8	-39°40	28/29 APRIL	2333	2343	10m ✓	126W	1" clear	3.25	100μ .8	120/7.0	8.6:	A2	NeA	20s	–	IIa-Ob	MUSE-2	Kai	T = 11°C RH = 50% W = 10 mph.
	64011	749.0	-39°42		2344	2354	10 ✓	137W					8.6:	A2							
	64138	749.7	-39°40		2355	0010	15 ✓	202W					9.0:	B8							
	64804	753.0	-39°14		0013	0030	17 19	216W	clouds				8.9	A2							
	91756	1033.7	-39°25		0040	0115	35 ✓	22W	"				9.0:	Ap.							moon/clouds contam?
	~~93334~~	~~1044.6~~	~~-39°39~~		~~0306~~	~~0320~~	~~16~~		too cloudy.				~~9.0:~~	~~A0~~							
	"	"	"		0307	0323	16 ✓	230W	clear				"	"							
	146590	1616.9	-22°58		0327	0412	45 ✓	220E					9.7	F0							B30 MOON VERY CLOSE BY 50 or so
	148153	1626.0	-27°09		0420	0430	10 ✓	215E	clouds				8.2	F2							B38
	149883	1637.3	-26°57		0520	0531	11 ✓	125E	clear				8.6	B9							B56
	149367	1633.9	-26°26		0536	0548	12 ✓	105E					8.7	B9							B46
	149893	1637.5	-24°05		0553	0605	12 ✓	51E					8.6	F0							B57
	149866	1636.4	-22°52		0607	0612	5 ✓	42E	clouds				7.8	F2							B54
	146606	1617.0	-27°59		0618	0623	4½ 3½	12E	break				7.7	A0							B31 hit tilt
2589	145810	1612.8	-24°11		0745	0752	7 ✓	122W	1" thru 10% clouds				8.0	A0							B5
	145857	1613.1	-24°05		0753	0808	15 ✓	137W					9.0:	A2							B8
	146069	1614.2	-23°41		0810	0828	18 20	157W					9.0	F0							B14
	146457	1616.3	-22°51		0831	0843	12 ✓	210W					8.7	A3							B27
	147137	1619.9	-22°30		0847	0910	23 21	234W					9.3:	F0							B32 moon contam?
	149597	1635.7	-27°03		0914	0939	25 ✓	245W					9.2	A0							B50
	149847	1637.2	-23°15		0941	~~1016~~	25		aborted cloudied out.				9.1	A0							B53 T = 10° RH = 45% W = 10
2590	62227	740.2	-39°10	1/2 MAY	2316	2320	4m ✓ streaking		2"				7.7	B9							T = 10° RH = 50% W = 15-25 mph
	62503	741.5	-39°08		2346	2349	3m ✓	200W					7.2	B9							
	627525	742.8	-39°49		2353	2356	3 10						7.2	B9							
	" N	"	"		2357	0001	3 20	212W					"?	?							
	63198	744.9	-39°22		0004	0015	11 13	224W					8.5	A2							
	65848	758.1	-39°20		0018	0021	3 ✓	215W					7.2	A0							
	65946	758.6	-39°05		0023	0041	18m 15	235W					8.9	A0							

All Moon contaminated
bumped plate holder.

LC NUMBER	OBJECT	R.A.	DEC	1983 DATE U.T.	UT EXP BEGIN	UT EXP END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
cont'd																					
2590	HD 91460	10 31.6	-39°46	V2 MAY	0058	0102	4m ✓	23W	2" clear	3.25	100μ / .8	120 / 90	7.5	B9	NeA	20s	—	IIa-0	mwe2	Kai	
	91503	10 31.9	-39°38		0105	0113	8m ✓	34W					8.1	A0							
	91756	10 33.7	-39°25		0116	0134	18 ✓	53W					9.0	Ap+G							
	92774	10 40.7	-39°14		0136	0148	12 ✓	1 00 W					8.5	A0							
	93837	10 48.0	-39°01		0150	0154	4 ✓	1 0C W					7.5	A0						-38°25 N of E	N E
	96844	11 07.3	-39°19		0158	0207	3½/4 ✓	52W					7.4	A0							
2591	105095	12 04.5	-39°02		0222	0230	8 ✓	~15W					8.2	A2							confirm finder.
	107202	12 18.1	-39°12		0234	0248	14 ✓	21W					8.5	A2							
	107714	12 21.2	-39°04		0249	0303	14 ✓	35W					8.8	A0	B8?						
	145778	16 12.6	-27°43		0323	0358	30m ✓	2 07E					9.5:	F2					Sc Rgn		B3
	146606	16 17.0	-27°59		0355	0400	4½ 4	2 22E					7.5:	A0							B31
	145810	16 12.8	-24°11		0404	0412	8 9	2 07E					8.0	A0							B5
	145887	16 13.1	-24°05		0415	0431	16 20	1 48E					9.0:	A2							B8
	146331	16 15.7	-25°48		0434	0444	10 ✓	1 37E					8.4	A0							B23
	146069	16 14.2	-23°41		0447	0507	20 30	1 14E					9.1:	F0							B14
	146957	16 16.3	-22°51		0509	0521	12 ✓	1 0E					8.7	A3							B27
	147137	16 19.9	-22°30		0523	0542	19 ✓	43E					9.1:	F0							B32
	147593	16 22.7	-27°19		0550	0621	31 35	7E					9.5	A0							B35
	148153	16 26.0	-27°09		0625	0634	9 ✓	3W					8.2	F2							B38
	149597	16 35.7	-27°03		0646	0710	24 26	28W					9.4:	A0							B50
2592	149893	16 37.5	-24°05		0716	0728	12 15	46W					8.7:	F0							B57
	150034	16 38.3	-23°47		0731	0800	29 50	1 16W				7.7	9.4	A2							B59
	149847	16 37.2	-23°15		0803	0824	21 40	1 42W				(9.6)	9.1	A0							B53
	149866	16 36.4	-22°52		0827	0833	6 ✓	1 52W					7.8	F2							B54
	146590	16 16.9	-22°50		0835	0925	50 80	3 03W					9.7	F0							B30
	147358	16 21.4	-22°36		0929	1019	50 65	3 53W	3"				9.6	A0							B33 T = 80 RH = 52% W = 25
																					B34

LC NUMBER	OBJECT	R.A.	DEC.	1983 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG B	SP	COMP KIND	COMP EXP	CALIB	EMUL	DEV	OBS	REMARKS
2593	HD 63080	744.3	-39°17	2/3 MAY	2316	2319	3m ✓	130W	1" clear	3.25	100μ .8	120 / 7.0	7.2	A0	Neon	20s	–	IIa-0b	MWP-2	Kai	conium fixed ✓ many field & s/c lost? 10° 51% 20 MPH
	63198	744.9	-39°22		2320	2332	12 ✓	142W					8.5	A2							
	~~63577~~	~~746.9~~	~~-39°48~~				7						8.1	B9	better fields needed.						
	65184	754.9	-39°02		2342	2358	16 ✓	203W					8.9	B8							
	65683	757.2	-39°31		0003	0010	7 ✓	211W					8.0	A0							
	65946	758.6	-39°05		0014	0029	15 ✓	228W					8.9	A0							
	93334	1044.6	-39°39		0032	0048	16 ✓	00	2"				9.0:	A0							
	107714	1221.2	-39°04		0053	0108	14 ✓	117E					8.8	B0?							
	111373	1247.5	-39°33		0111	0117	6 ✓	125E					7.9	B9							
21	115987	1319.6	-39°50		0120	0124	4 ✓	159E					7.5	B9							
	97865	1113.6	-39°10		0143	0203	20 ✓	~45W				0.3	9.0	A0							
	107107	1217.5	-39°59		0207	0223	16 ✓	02W					8.9	A2							
	R Hya	1328.1	-23°08		0227	0230	1,2 ✓	101E					5.5	M7							
2594	146606	1617.0	-27°59		0247	0257	4,5 / 3½	325E					7.4:	A0							B31
	145857	1613.1	-24°05		0300	0322	22 / 30	254E					9.0:	A2							B8
	146069	1614.2	-23°41		0325	0358	33 / 40	218E					9.1:	F0							B14
	~~146590~~	~~1616.9~~	~~-22°50~~										9.7	F0	[illegible]						~~B30~~
	147356	1621.4	-22°36		0401	0441	40 ✓	138E					9.6	A0							B33
	148288	1626.9	-22°38		0449	0524	35 / 50	105E					9.6	~~A0~~ F2							~~[illegible]~~ B41
147593	~~[illegible]~~	1622.8	-27°19		0535	0614	39 ✓	12E					9.5	A0				seeing degenerating			~~[illegible]~~ B35
	149597	1635.7	-27°03		0615	0642	27 ✓	11W	cirrus				9.5:	A0					moon contam?		B30 7° 62% 15 MPH
																					~~[illegible]~~
2595	62227	740.2	-39°10	3/4 MAY	2311	2324	4.5 ✓	141W	1-2" clear				7.7	B9							T 8° RH 64% W 10 MPH
	63577	746.9	-39°48		2324	2331	7 ✓	145W					8.1	B9							
	64804	753.0	-39°14		2337	2352	15 ✓	200W					8.9	A2							
	65054	754.1	-39°40		2354	0003	9 ✓	210W					8.3	B8							
	67360	804.9	-39°04		0011	0020	9 ✓	216W					8.3	A0							
	67905	807.5	-39°24		0023	0029	6 / 5	222W					7.8	A0							
	73243	834.8	-39°33		0031	0046	15 / 15	212W					8.8	B9							

NUMBER LC	OBJECT	R.A.	DEC.	1983 DATE U.T.	U.T. EXP. BEGIN	U.T. EXP. END	TOTAL / CORR.	H.A. END	SEE. / TRANS.	CAM. FOCUS	SLIT	GRATING / TILT	MAG. B	SP.	COMP. KIND	COMP. EXP.	CALIB.	EMUL.	DEV.	OBS.	REMARKS
confid 2595	HD 73500	836.2	-39°36	3/4 MAY	0047	0103	16 / 18? ✓	228 W	2° clear	3.25	100μ / .8	120 / 7.0	8.8	B8	NeA	20s	–	IIa-Ob	mwp2	Kai	
	73698	837.1	-39°46		0106	0123	17 ✓	248 W					8.8	B8							confirm finder.
	73699	837.1	-39°59		0124	0130	6 ✓	254 W					7.7	B5							
	73901	838.2	-39°41		0131	0141	4+5 ✓	305 W					7.4	A2							
	96337	1104.5	-39°23		0145	0201	16 ✓	57 W					8.9	A0							
2596	R Hya	1328.1	-23°08		0250	0257	3.4 ✓	30 E					5.5	M7e							
	HD 145810	1612.8	-24°11		0306	0329	8.8 / 12	254 E					8.0	A0							B5
	145857	1613.1	-24°05		0323	0417 0353	30.24 ✓	154 E					9.0:	A2							B8
	146606	1617.0	-27°59		0420	0428	3.4 ✓	148 E					7.3:	A0							B31 confirm finder
	dSco	1615.5	-28°34		0502	0503	1 tail ✓	112 E					4.8	A0							~~[illegible]~~ Std.
	HD 146457 ~~[illegible]~~	1616.3	-22°57		0510	0522	12 ✓	53 E					8.7	A3							B27
	149827	1637.1	-24°42		0524	0604	40 ✓	31 E					9.9	B9							B52 confirm finder YES OK
	149893	1637.5	-24°05		0606	0632	15.11 ✓ 17	02 W					8.7:	F0							B57 hit grating during first.
	150034	1638.3	-23°47		0634	0724	50	53 W					9.4	A2	overlapped.						B59
	145837	1613.0	-27°44		0736	0826	50	218 W					10.2:	A2							B6
2597	164514	1759.7	-22°54		0837	0901	6.8.10 ✓	102 W					8.2	A5							Stds
	167838	1816.6	-15°26		0904	0919	2.3.4 ✓	100 W					7.2	B5							"
	166~~370~~ 434	1810.4	-39°35		0923	0930	7 ✓						8.0	~~B9~~ A0							
	169180	1823.2	-39°40		0935	0945	4.5 / 6	123 W					7.6	B8							
	169792	1826.1	-39°47		0947	0957	10 ✓	133 W					8.5	A0							
	175814	1856.9	-39°37		1002	1017	15 ✓	122 W					8.8	A0							
	178869	1909.9	-39°20		1018	1027	4.5 ✓	119 W					7.6	B8							6° 56% 15 MPH
2598	73699	837.1	-39°59	4/5 MAY	2324	0005	41m ✓	133 W	1-2" clear	2.75	50μ / 1.2	67 / 5.11	7.7	B5		30s			M-S		10° 50% 10 MPH
	73901	838.2	-39°41		0005	0031	28 ✓	157 W	1"				7.4	A2							
	91756	1033.7	-39°25		0034	0304	150 / 130	236 W					9.0:	Ap	overlapped.						
	147955	1624.5	-26°33		0320	0432	72 / OX	143 E					8.3	B9							A20
	151346	1646.5	-23°57		0519	0622	63 / OX	19 E					8.3	B7	overlapped w/ 147099						